

15
PUBLIC HEALTH ACT.

(11 & 12 Vict., Cap. 63.)

R E P O R T

TO THE

GENERAL BOARD OF HEALTH,

ON A

PRELIMINARY INQUIRY

**INTO THE SEWERAGE, DRAINAGE, AND SUPPLY OF
WATER, AND THE SANITARY CONDITION
OF THE INHABITANTS**

OF THE PARISH OF

B U R N H A M.

By **THOMAS WEBSTER RAMMELL, Esq.**

SUPERINTENDING INSPECTOR.



L O N D O N :

PRINTED BY W. CLOWES & SONS, STAMFORD STREET,

FOR HER MAJESTY'S STATIONERY OFFICE

1849.

NOTIFICATION.

THE General Board of Health hereby give notice, in terms of section 9th of the Public Health Act, that on or before the 24th January, 1850, written statements may be forwarded to the Board with respect to any matter contained in or omitted from the accompanying Report on the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants of the Parish of BURNHAM, or with respect to any amendment to be proposed therein.

By order of the Board,

HENRY AUSTIN, *Secretary.*

Gwydyr House, Whitehall,

14th December, 1849.

PUBLIC HEALTH ACT (11 and 12 Vic., Cap. 63).

Report to the General Board of Health, on a Preliminary Inquiry into the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants of the Parish of BURNHAM.
By THOMAS WEBSTER RAMMELL, Esq., Superintending Inspector, 1849.

MY LORDS AND GENTLEMEN, *Gwydyr-house, Whitehall, 1849.*

I HAVE the honour to state that, in pursuance of your instructions (issued upon a petition signed by 101 out of 363 of the rate-payers of the parish), I have visited the parish of Burnham, in the county of Somerset.

Having caused the requisite notices to be issued for a meeting, at the Clarence Hotel in the town of Burnham, on the 2nd of February last, I commenced on that day a public inquiry into the matters mentioned in my instructions, and chiefly set forth in the published notices.

I continued the inquiry throughout that and the following day, when, finding that the importance of the case demanded more time than my engagements then left at my disposal, I deemed it expedient to adjourn the meeting to the 15th February; on which day I recommenced the inquiry, and finally concluded it on the 17th.

The meetings were attended by nearly all the principal inhabitants; amongst whom I may mention by name, the Rev. F. F. Beadon, Vicar of Burnham; the Rev. George Chambers, Curate of Burnham; Mr. George Reed; Mr. John Ginter; Mr. Samuel Hobbs, solicitor; Mr. B. T. Allen, solicitor; Mr. Thwaites; Mr. P. H. Williams, surgeon; Mr. Walter Board, surgeon; Mr. F. R. Chadwick, surgeon; Mr. John Buncombe; and Mr. John Adams: and I was readily accompanied by many of those gentlemen in my perambulations of the town and parish.

Much interest appeared to be taken in the inquiry by all those present, and every disposition was manifested to place the fullest information before me. Mr. Samuel Hobbs was of much service to me throughout the investigation; and the proceedings were watched on the part of the owners and occupiers of land by Mr. B. T. Allen.

The following is a list of the witnesses who gave evidence before me :—

1. George Haynes, builder.
2. Thomas King, builder.
3. Joel Norris, draper.
4. William John, proprietor of the public baths and pump-room.
5. George Gane, relieving-officer.
6. Walter Board, surgeon.
7. George Reed, gentleman.
8. Charles Butt, agricultural labourer.
9. Henry Morse, agricultural labourer.
10. John King, agricultural labourer.
11. P. H. Williams, surgeon.
12. John Gunter, of Berkeley-square, London.
13. The Rev. George Chambers, curate of Burnham.
14. Richard Cox, sexton.
15. The Rev. F. F. Beadon, vicar of Burnham.
16. Robert Wakeham, hotel-keeper.
17. Jane Dunn.
18. Sarah Corp.
19. Samuel Hobbs, solicitor.
20. John Adams.
21. John Buncombe, surveyor.
22. F. R. Chadwick, surgeon.
23. P. I. Petherick, stationer.
24. James Keates, farmer.
25. John Hurman, cattle-dealer and auctioneer.

I beg to submit herewith a petition which was presented to me by Mr. B. T. Allen, at the conclusion of the inquiry, and which originates from certain of the owners and occupiers of land in the parish, and related to the extent of the boundary of the district to be formed for the purposes of the Act.

I have the honour, &c. &c.

T. W. RAMMELL.

R E P O R T.

The town and parish of Burnham are situated on the western side of the northern part of the county of Somerset.

The town is wholly contained within the parish, and is placed at its western extremity, and upon the shore of the Bristol Channel.

The direction of the shore line here is north and south; but a little below the town this line sweeps suddenly round, and becomes, for nearly 50 miles, and until the channel has widened into the open sea, due west; thus the town has a western aspect, and is thrown completely open to the Atlantic.

Burnham is 25 miles from Bristol, 15 from Wells, and 8 from

BURNHAM.



Note. The dotted line denotes the boundary of the Parish of Burnham.
The strong black lines represent the proposed system of pipes for irrigation.

SCALE.





Digitized by the Internet Archive
in 2014

<https://archive.org/details/b20422313>

Bridgwater. It communicates with London by means of the Bristol and Exeter and Great Western Railways, and is only one and a-half miles distant from the Highbridge Station of the former line.

The parish forms a portion of a very extensive area of flat land, the main natural boundaries of which are—on the north, the range of the Mendip-hills; on the west, the Bristol Channel; and on the south and east, the irregular base line of the high land which, in the former direction, first appears near Bridgwater, and continues round to Glastonbury and Wells in the latter. Here and there over this immense area are seen isolated portions of elevated ground; some of which are extensive, and rise gradually from the level surface, while others are steeper and of limited extent; but with these exceptions the entire surface is perfectly flat, or not varying from the level more than a few feet.

The flat is naturally sub-divided; and that part of it in which Burnham is placed is separated from the main by the river Ax on the north, by the river Brue on the south, and by a ridge of elevated land, on which the villages of Wedmore, Chapel Allerton, and Badgworth are placed, and which lays across almost from river to river on the east. The area included within these boundaries is about 40 square miles, and the whole of it is perfectly flat, with the exception of a part near the centre, about $1\frac{1}{2}$ square miles in extent, and called the Brent Knoll, which rises boldly, and as if protruded from beneath the plain, to a height of several hundred feet.

The soil is alluvial, and consists of a clay, in colour of a cold pale brown, quite free from grit, and when moistened, of a peculiarly soft and soapy consistence. It is deposited but thinly on the elevated parts, although in the flat to a very considerable thickness; and here the deposit is interstratified with two or three layers of shingle and peat, which yield water.

Mr. Thomas King states,—

“I have sunk two wells in the clay of the marshes, 18 feet deep each; there was clay to that depth, and then I found shingle; this was one-third of a mile from the town.”

Mr. John Buncombe states,—

“The bed of clay in the flat is 65 feet deep, and under it there is sand yielding saline water.”

One of the layers of peat appears on the surface, at the eastern side of the district, and is dug for fuel. A line of sand-hills, about a quarter of a mile wide, extends along the shore, and upon a part of this strip which has been levelled, the greater portion of the town stands.

During the spring tides, which rise here from 30 to 35 feet, the surface of the flat is slightly below the level of high-water; but the neap tides rise only to a point many feet below the surface

level. At low-water, a large extent of soft muddy shore, called the "Stert Flats," and the "Berrow Flats," separated one from the other by the winding course of the river Parret, which here falls into the Bristol Channel, is visible from the town. Within-side these flats, however, there is a strip of hard dry sand, about six miles in length, well adapted for walking and driving.

The Parret constitutes the port of Bridgwater, and the Brue, which has been locked up at Highbridge, and thus rendered navigable as far as Glastonbury, falls into the Parret about a mile to the south of the town; so that the mouth of this river is the channel of a very considerable trade.

The prevailing winds blow from the south-west, and are invariably agreeable in temperature, and even the north and north-east winds here are temperate in comparison with the cutting winds from these quarters experienced on the eastern coast of England. The Flat and Channel, however, are occasionally swept by extremely violent gales.

I have not been able to ascertain the amount of the rain-fall in this district; but may mention that observations on the opposite coast of Glamorganshire during the 20 years, 1824—1843, have shown an average annual depth of $46\frac{1}{2}$ inches.

The climate is mild but not relaxing, and is said to be a peculiarly healthy one; and on this account, and from the position of the town on the sea-shore, the place is much frequented by visitors in the summer and autumn months.

Mr. P. H. Williams, who has resided at South Brent, near Burnham, for 40 years, states,—

"I have a knowledge of the flat country here generally, there being scarcely a parish within 10 miles that I have not some connexion with; I consider the Flat generally to be more healthy as it approaches the sea.

"I believe, if the drainage of the marshes were perfect, a finer or more healthy country could not be found in England."

Mr. Walter Board states—

"I consider the place naturally a healthy one; it has been strongly recommended by medical men of Bath and Bristol to their patients for change of air."

With the exception of occasional patches of arable land, and of a small extent of moorland on the east side, the whole of the flat district within the subdivision described is cultivated as meadow and pasture land.

The surface is divided into farms commonly of about 50 acres each, and these are subdivided into fields of moderate size, which are separated one from another by ditches.

The clay soil is extremely rich; and the average rental of the land is as high as from 50s. to 60s. per acre.

There are very few trees upon the Flat; and, indeed, in that part of it bordering upon the Channel the sea-breezes appear to be

unfavourable to their growth. The blackthorn, however, is said to flourish here.

Bricks and tiles of very excellent quality may be manufactured from the clay, and there are some pottery works on a small scale, and for the coarser description of articles, only at Highbridge, although at the same place there was formerly a manufactory for the finer kinds of ware.

BUILDINGS.—The town of Burnham is not the only collection of houses in the parish, the village of Highbridge, where a very important market is held; and the hamlet of Edithmead, being also contained within it. The former of these is about a mile and a-half from Burnham towards the south-west; and the latter at about the same distance westward of Burnham, and northward of Highbridge.

The buildings of Burnham consist mainly of a terrace of moderately good houses facing the sea, with a few parallel and cross streets of inferior houses, mostly intersecting each other at right angles inland; but there are, in addition, a few detached residences of a superior class at the outskirts of the town on the north side.

The houses are chiefly built of brick, and the greater number of them stand upon a sandy substratum.

The only public buildings in the town are—the church, an ancient structure, with a burial-ground attached, at the north end, and open to the sea; and a dissenting chapel in the midst of the houses at the south. The sea-wall, in front of the town, is faced with rubble-stone.

The greater part of the town has been built within a comparatively recent period, but the principal increase took place only a few years since.

Mr. Buncombe states—

“When I first came to reside here (about 50 years ago), there were only 25 houses in the town.”

Mr. John states—

“I have lived here 16 years, and within that time property to the amount of between 60,000*l.* and 70,000*l.* has been expended in the place in the erection of houses.”

Highbridge differs in no respect from an ordinary village, except in having a large market-house for the sale of cattle and cheese, and agricultural produce generally.

The hamlet of Edithmead consists only of a few detached houses.

GOVERNMENT.—There is no local Act of Parliament in force within the parish having relation to any of the purposes of the Public Health Act; and the town has no other governing powers for the management of its affairs than those common to the rural districts.

The jurisdiction of the Commissioners of Sewers for the county of Somerset extends over this district.

TRADE.—The town, as before stated, is a watering place, and its inhabitants are mostly dependent for their support upon visitors who resort to it during the summer and autumn months, and chiefly from Bath and Bristol.

The naturally fine air, and the extensive sands near the town, are its principal attractions; and these are sufficiently great to render it probable that, with improved sanitary arrangements, the town would become one of the favourite watering-places of the West of England.

Mr. Gunter states:—

“Physicians generally consider the sea air here to be one of the finest in the country, and I have no doubt that if the drainage were made good, the town would become a favourite watering-place. I do not think there can be two opinions upon this point.”

Highbridge is now the seat of one of the most important markets for agricultural produce in the West of England; and as it possesses great facilities for traffic and the transport of merchandize, being a sea-port, and having a railway, a turnpike-road, and a navigable canal passing through it; and is moreover situated in the midst of an extremely rich agricultural district, its importance will probably increase. Both monthly and weekly markets, are held here, which are greatly frequented, and at which much business is done in cheese, butter, cattle, pigs, poultry, &c.

Mr. Joel Norris states:—

“At the monthly markets there may be usually from 1,500 to 2,000 persons; and at the weekly markets from 200 to 300. The weekly market is principally for butter and poultry.

“The village will in all probability become an important place. I have seen as many as 11 vessels in the port at a time, carrying chiefly coals and timber. Vessels of 400 tons burthen can come up to the bridge.”

There is an extensive brewery between Highbridge and Burnham, but with this exception, the remainder of the parish is purely agricultural. Very large quantities of cheese of the kind called Cheddar are produced in it.

STATISTICS.—*Area.* The total area of the parish is 3,872 acres, of which *Mr. Buncombe* states:—

about 68 acres consists of roads and rhynes.

„ 500 „ of arable land.

„ 3,304 „ of meadow, pasture, orchard, and builded area.

Total 3,872 acres.

Houses.—The following Table exhibits, classed in four divisions, the numbers and the annual rateable value of the houses

in the parish rated to the relief of the poor. The rateable value is taken at about five-sixths of the estimated rental :—

HOUSES.—*In the Town of Burnham.*

	£.		No	£.	£.
£. not exceeding	3	rateable value	29.		74
Above 3	5	„	28		122
5	10	„	29		222
10	20	„	34		510
20	30	„	18		408
30	40	„	5		180
40	50	„	6		281
			— 149		— 1857

In the Village of Highbridge.

	not exceeding	3	rateable value	10		28
Above 3	5	„	13		43	
5	10	„	11		100	
10	20	„	13		160	
20	30	„	2		57	
30	40	„	1		35	
			— 50		— 423	

In the Hamlet of Edithmead.

	not exceeding	3	rateable value	8		22
Above 3	5	„	2		9	
5	10	„	7		53	
10	20	„	5		77.	
			— 22		— 161	

In the remainder of the Parish.

	not exceeding	3	rateable value	23		58
Above 3	5	„	25		99	
5	10	„	20		142	
10	20	„	10		164	
			— 78		— 463	

Total of houses . 299 Total Rateable Value. } £2904

Population.—The population of the parish, according to the two last censuses,

In 1831 amounted to 1,113 individuals.

In 1841 „ 1,469 „

showing an increase in the ten years of 356, being at the rate of 31.9 per cent. per annum.

The population of the town, in 1841, amounted to 769 individuals, but Mr. Buncombe estimates the present population of the town alone at 1,000, and that of the entire parish at least 1,700.

Mortality.—The following Table, exhibiting the births and mortality in the parish of Burnham during the seven years 1842-8,

has been prepared from a return furnished by the Superintendent Registrar of the district:—

YEARS.	Total Births.	Deaths under 12 Months.	Deaths under 5 Years.	Deaths under 20 Years.	Total Deaths.	Deaths from Epidemic, Endemic, and Contagious Diseases.
1842	50	7	7	8	18	..
1843	40	4	10	11	22	6
1844	50	5	11	12	24	5
1845	63	5	10	18	43	7
1846	56	8	12	14	33	5
1847	51	6	9	10	29	1
1848	52	5	13	16	37	6
Totals	362	40	72	89	206	30
Annual Averages } }	51.7	5.7	10.2	12.7	29.4	4.2

Taking the population of the middle year, 1845, at the number given by the census of 1841, with the addition of half the estimated increase to the present time, or, in round numbers, at 1,600, the average proportionate numbers of births and deaths to the population during the same period will be as stated in the following table; in which, in order that a comparison may be instituted, I have placed in juxta-position with them the corresponding numbers of births and deaths occurring in the registration district of Williton and Wellington, in the same county; and in that of the Isle of Thanet and Eastry, in the county of Kent, in the year 1841, as given in the table published by the Health of Towns Association:

—	Proportion of Births to the Population.	Proportion of Deaths to the Population.			Proportion of Deaths to the Population	Proportion of Deaths from Epidemic, Endemic, and Contagious Diseases to Population.
		Under 12 Months.	Under 5 Years.	Under 20 Years.		
Burnham	1 in 31	1 in 280	1 in 157	1 in 126	1 in 54	1 in 381
District of Williton } and Wellington } Isle of Thanet and } Eastry }	1 in 38	1 in 373	1 in 213	1 in 156	1 in 60	1 in 446
	1 in 35	1 in 358	1 in 209	1 in 149	1 in 64	1 in 490

Upon the estimate of population before adopted, the average annual proportion of deaths in the parish of Burnham to 1,000 of the population living during the same period is 18.3.

The above comparison shows a higher rate of mortality in the parish of Burnham during the seven years 1842-8 than that occurring in either of the other districts during the year 1841, which there is no ground for regarding as more than an average year.

The Isle of Thanet and Eastry registration district contains two

towns, each of 10,000 inhabitants, both having their own lists of mortality swollen by a large addition of deaths from visitors, many of whom are invalids frequenting them as watering places; and the circumstances of the comparison are therefore favourable to Burnham. To what cause then is the increased mortality in Burnham mainly due? The strongest testimony having been given to the natural healthiness of the situation and climate, the answer can only be—to imperfect drainage of refuse matter and of the surface waters.

In both these respects it will be shown that Burnham is lamentably deficient; while it may be now stated that the former district, being situated upon the chalk formation, is by the absorbent powers of that rock, and even in the absence of artificial works, in a great measure rid of its liquid refuse, and completely drained of its surface waters.

I now proceed to the description of the following subjects in the order here stated, viz. :—

1. The suburban drainage and water supply.
2. The town drainage and water supply.
3. The paving, cleansing, lighting, and watching.
4. The burial grounds.

SUBURBAN DRAINAGE AND WATER SUPPLY.—The flat form of the parish, and the retentive clay soil, render it absolutely necessary that some provision should be made for the discharge of the surface-water, or during the rainy months the land would be almost constantly inundated; and there is no great difficulty in the way of the formation of efficient works for this purpose, for excepting during the short intervals of high-water spring-tides, the surface of the flat being considerably above the sea-level, ample and convenient outfalls may be obtained into the River Brue.

The management of the drainage of the whole flat district is vested in the Commissioners of Sewers for the county of Somerset.

The works of surface-drainage at present provided consist of certain main water-courses here called “rhyes,” furnished with flood-gates, &c., and of numerous ditches for the most part communicating with them, and which intersect the Flat in every direction.

Mr. Buncombe states :—

“There are three outfalls into the Brue, and the total length of rhyes communicating with them is about 16 miles. The water in the rhyes is usually about 2 feet deep, and its surface about 3 feet below the surface of the Flat.”

The rhyes are not proportioned throughout their length to the quantity of water that each part has to convey.

Mr. Buncombe adds :—

“The main rhyes at the outfalls and in the interior are all of the same width and depth, or nearly so.”

The discharge of the surface-water into the ditches and rhynes is facilitated by small channels or grips cut in the fields, and in most cases by the ground being thrown up into ridges.

It appears that little or no improvement has been made in the rhynes for many years past, and that they are very insufficient for the discharge of flood waters.

Mr. Buncombe states:—

“The drainage of the land is now in the same state in which it was when I first came into the parish 50 years ago. I know of no improvement in the main rhynes since I came here. I consider the outfalls to be insufficient, and the present state of the drainage generally to be very defective.

“There is no regulation as to the level of the water to be maintained in the rhynes; this is left to chance, and sometimes the occupiers of land dam up the water for their own benefit, and frequently to the injury of those occupiers behind them, who have no remedy but to beat down the dam.”

This “damming up of the water” will have suggested the existence of another difficulty under which the Flat labours, viz., deficiency of water in the summer months, amounting, it may be added, in hot and dry seasons to droughts which are very severely felt.

I shall endeavour to show the extent of these evils of alternate excess and deficiency of water, and their effects; not only upon the health and comfort of the population, but also upon the agriculture of the parish.

With regard to the excess of water, *Mr. Buncombe* states:—

“Edithmead, Love-lane, and Middle Burnham, are subject to inundation in winter time; and they are frequently impassable on that account. I have seen the water in Love-lane a foot deep, and it lay for a week or longer in the road, which was quite impassable for foot-passengers unless they waded through the water.

“Some winters the roads are not inundated, but this is the exception to the rule.

“I have not observed that the water leaves the land faster now than it did when I first came into the parish.”

Mr. Norris states:—

“The water in Love-lane I have seen three times in 11 years from 1 foot to 18 inches high.

“The water at Isleport was over the road last summer; there was about 6 inches of water in the road, and it appeared to have been much higher than at that time. I saw from 30 to 40 yards of the road covered. One field within 200 yards of this spot is partly inundated for about two months every year.

“I have seen the water over the road at the end of Wall-row Lane; it was two or three inches deep.”

Charles Butt states:—

“Down at Middle Burnham the country is often under water; most

times, when a good deal of rain comes, I have heard of their being under water at Isleport, and I once saw it."

Mr. P. H. Williams, in speaking to their extent, alludes to the inconvenience resulting from these inundations; he states:—

"I move much about the country here, and am often inconvenienced by the floods; this very winter I drove for at least three-quarters of a mile in one place in the parish of Burnham through water, in places more than a foot deep. I have seen the very centre of the town under water."

Mr. G. Reed states:—

"This winter, in the extreme part of the parish, I have been stopped three or four times by the inundations when intending to pass to the next parish; the water stood on the road as deep as this table (about 2 feet 6 inches). I have seen these inundations at least 50 times since I lived in the parish."

With regard to the deficiency of water, *Mr. Buncombe* states,—

"A good many of the ditches are dry every summer. I have seen all the rhynes and ditches dry, and that was nearly up to Christmas."

It may be observed that this deficiency takes place, notwithstanding the efforts of the occupiers of the land, whose great object is to keep the rhynes and ditches full of water in the hot season, in order that the land may have the benefit of the limited subsoil irrigation that ensues.

There being at present no outfall, subsoil drainage cannot be practised in any part of the parish, the condition of the soil thus alternately saturated with moisture and parched with heat, is such as might have been inferred. *Mr. Buncombe* states:—

"A hole sunk in the clay of the lower part of the Flat to the depth of two feet will have water standing in it: this water will not flow in great quantity, being only that which lies in the soil having drained in through the cracks and fissures; the soil, as far as it can be, is loaded with free-water. There are very few earth-worms in the Flat: some occasionally are met with."

In the general description of the Flat, it was stated that the soil, both of the elevated and level parts, consists of the same extensive deposit of clay, varying only in thickness and position. The difference, however, between the present undrained soil of the Flat and that of the summits of some of the eminences, where a kind of natural drainage has ameliorated its condition, is most striking. The soil of the extreme summit of the Brent Knoll—several hundred feet high—presents an instance of this change of condition.

Mr. Reed states,—

"The soil on the top of the Brent Knoll is a fine soft loam, and is particularly good. It is equally good on the top of Clevedon Hills. No water lies on the tops of these hills, and I attribute the superiority of these soils solely to the good effects of better drainage over a long series of years.

“There is a great difference in the soil, even on the Knoll. Half-way up, the soil is not so good, on account of the water it contains. It is always good in proportion as it is well drained.

“I consider the soil on the top of the Knoll to be better than that of the Flat, simply on account of its dryness; in other respects I consider the soils identical.”

Mr. Buncombe states:—

“I know the land on the top of the Brent Knoll, it is better than the land on the side of the Knoll, only because it is drier. The herbage on the top of the Knoll is particularly sweet and good.”

The benefits of a partial drainage are experienced even on the Flat, where those parts lying the highest (it has been described as varying a few feet in level in different parts), and which are consequently the most favourably placed for the discharge of the surface water, and for the avoidance of the floods, are stated to be invariably the richest and most productive.

Mr. Buncombe states:—

“I have valued the entire parish three times over; I have also valued the parish of Bleadon, and the parish of Hatton, and have adjusted the taxes of the parish of Woolhavington. The land lying the lowest in this parish does not yield the greatest produce. I have invariably found that the best drained (*i. e.*, surface drained) and driest land is the most valuable.”

In the Flat the great productive powers of the soil are repressed only by the unfavourable circumstances as respects dryness and moisture under which it is placed. Its natural fertility can hardly be surpassed, and indeed it is said to be capable of bringing the pine-apple,—a plant which requires the very richest soil,—to great perfection.

Mr. Reed states:—

“I have cultivated pine-apples very largely, having cut as many as 160 good fruit in a single season. The pine requires the very richest soil. I could not grow them in the soil taken from the Flat. The plants got sickly, and died off, but I have brought them to great perfection in the soil taken from the top of the Knoll. I have seen the Chiswick show of pines, and never saw any there much finer than my own. I have cut them in season of $5\frac{1}{2}$ and $5\frac{3}{4}$ lbs. weight, and successions out of season of 3 and $3\frac{1}{2}$ lbs. These last, but for the extremely rich soil, would not have weighed 1 lb.; they would not have been fit for the table.

“I have been offered 1*l.* per ton for the soil on the Knoll, sent to London, the party paying the carriage up”

The effects of the floods and excess of humidity upon the crops, and upon the breeding and rearing of stock on the Level, will be exhibited in the following extracts.

Mr. Buncombe states:—

“Not only does the land suffer from the retention of the surface water, but the stock upon it also suffers much from the same cause. It is noto-

rious that the mortality amongst cattle on this Level is very great. I know no other reason for this, excepting the wet state of the land and the extreme dampness of the atmosphere. At Edithmead I have known a succession of crops fail on account of the floods. I have known this to occur two or three years following. Other parts of the parish are subject to the same calamity more or less. I may instance Whitecross, near Brentroad, Bagney, Coplefield—several fields at most of these places.”

Mr. Reed states :—

“It is a common remark with the farmers here, that one bullock in wet weather has five mouths,—that is to say, that every bullock then treads away with each of his four feet as much as his mouth consumes.

“The cattle suffer much in the Flat from the scours and quarter-evil, diseases which are produced from chills, from lying on the wet soil. I have seen beasts lying up to their middles in water; the water oozes up from the ground they lie on. Many farmers have lost hundreds of their stock from wet, not having dry places to put them in. There is a great want of dry sheds for stock in this county. The young stock especially suffers. The farmers cannot rear enough for their own use. They attempt to supply their own wants, but are unable to do so. I do not know amongst all the farmers here one who now possesses five yearlings reared from his own dairy, and I have known many who have had from 10 to 15 this year, which have all died. They have not been killed by the butcher, but have died from disease—from the scours, which is a rapid consumption. This is not caused by unsound land, but simply by the wet, and if this land were properly drained, I have no question that beasts would thrive upon it. The land produces very heavy crops, and there is no reason why beasts should not thrive upon it, but the excess of moisture. They do thrive during the summer months when the land is drier.

“I have heard many old farmers say that more beasts have died during the last two years, which have been unusually wet, than they have ever known before in their lives.”

Mr. John Hurman, a cattle dealer and auctioneer in an extensive way of business, states :—

“I was born in this flat, and have resided for 10 years in the adjoining parish, and know the district well.

“The wetness of land interferes a good deal with the breeding of stock; they invariably do better on dry land. I have not the least doubt that if the land in this flat were made drier by drainage, cattle would do better upon it.

“At times very heavy losses are sustained by the farmers from the sickness amongst the stock—from the scours and quarter-evil. Farms in other parts of the county, which lie high and dry, are entirely free from these diseases.

“Sheep do not do well upon this flat, on account of the wetness of the soil: they suffer from the rot. Thousands have had the rot in this level during the last season, which has been unusually wet. These sheep are not allowed to die, but they are sold to the butcher at a sacrifice.

“Yesterday, at Bristol market, I sold a lot of 26 sheep affected with

the rot, for less than half the sum they would have fetched had they been sound.

“ Upon dry land sheep are never affected with the rot. I think there are now very few sound sheep on this level. As a general rule, there is rot amongst the sheep on it in wet seasons.

“ Sheep very quickly become affected with the rot. I know an instance which occurred near Bristol, where a perfectly sound flock of sheep which had been sold, but not delivered, were brought from some high land, where they had been folded, and turned in for either one or two nights upon some low land near Bedminster. In that short space of time the greater number became affected, and the buyer, to whom they were afterwards delivered, brought an action and recovered damages for the loss sustained by him in consequence.

“ In this district, where so much stock is kept, the dryness of the land must be of great consequence to the farmer.”

The effect of the imperfect drainage upon the health and comfort of the population is, as was to be expected, most marked.

Mr. P. H. Williams, who, as a medical practitioner, has had great experience, not only in the parish, but over the whole flat, states :—

“ The marshes are never free from fog in some parts ; and in the evening, particularly, the exhalation from the common ditches is dreadful.

“ The diseases, generally speaking, of our marsh county are very much aggravated along the whole of our sea-coast, from want of drainage. Those to which we are principally liable to are intermitting and remitting fevers. Scrofula is the very pest of our county ; there is scarcely a family free from it ; and disordered stomach, from the marsh miasma, is a most prevailing mischief here. Now, I consider that with such a fine coast as this, if we were well and properly drained, it would go far to ameliorate the condition of the inhabitants generally.

“ Within my time the drainage of the marshes has been somewhat improved ; and there has been a corresponding diminution in the cases of ague. Low typhus is a very prevailing disease here, and no doubt proceeds entirely from the miasma. If we have a long continuance of very hot dry weather in the summer, so that the deposit of the ditches is much exposed, and we do not get an early rain in the autumn to cover it over, it soon shows itself in the production of fevers of every description. The almost continuous rain of the last two years has been very favourable to the health of the district, the exhalations being from comparatively pure water.

“ There is not a parish in the whole flat in which disease is not produced to a very great extent by the effects of the insufficient drainage, both of the marshes and of the builded area.

“ The health of the poorer classes especially is affected by it, and they are often for long times together incapacitated from work.”

Mr. W. Board, who has resided three years in Burnham states :—

“ Fogs are not frequent here. In the morning and evening there is

usually a mist upon the marshes, but this ordinarily does not rise more than eight feet from the ground.

"Ague is not so prevalent in Burnham as in the neighbouring villages. There are frequent cases of it. It was worse formerly. I attribute the attacks of ague to the marsh miasma. These marshes extend for a great many miles around the town. If they were better drained, and the ditches made to communicate more freely with the rhynes, I have no doubt the atmosphere would be drier.

"I have been attending one family nearly all the winter, who have been attacked with remittent fever; the whole family, without exception, have been ill. The house is situated about the centre of the parish. I attribute their illness to the damp of the marshes, and the want of proper drainage."

Mr. F. R. Chadwick states:—

"Fever, intermittent and remittent, and diseases of the stomach and bowels, and the liver, are the class of diseases the most common here; but neither prevails to any great extent. There was during the last spring and summer much ague all over the flat. I was remarking the week before I got the first case of intermittent fever, that it was strange I had not yet seen one, considering the stagnant ditches.

"The state of the ditches in the summer time, particularly when they are nearly dry, must affect the health of the population of the district. I think the place naturally a very healthy one, and that if the drainage were much improved, the doctor might be got rid of altogether."

Even with this excessive humidity, there is an actual scarcity of water fit for drinking and domestic purposes.

Mr. P. H. Williams states:—

"The only water at the command of the poorer classes is that stagnating in the ditches; and the rich are not much better off in this respect. Filters are in common use in the better class of houses; and it is a common practice to boil the water to destroy the insects in it. The impure water constantly drank must have a sensible effect upon the health of the district."

Mr. W. Board states:—

"I believe that fever and ague is partly due to the habit of drinking the water of the rhynes, which has drained from the marsh ditches, where in times of drought it has remained stagnant."

The effect of the dampness in the houses, caused by the want of subsoil drainage, and also by the inundations; is very sensible in deteriorating the health of the district.

Mr. W. Board adds:—

"The inundations which have been spoken of, rendering the houses damp, no doubt causes them to be injurious to health. The houses generally are built of brick and stone. The brick is very retentive of moisture. Most of the cottages have the walls discoloured for 4 or 5 feet up them."

But perhaps the best idea of the state of things resulting from the imperfect drainage may be drawn from the experience of that class of the population, the members of which are the least able

to protect themselves from its ill effects. The following extracts from the evidence of two of the agricultural labourers living on the flat will show how their condition—under all circumstances hard enough—is aggravated by the inundations and excess of damp consequent upon the present defective works.

Charles Butt states:—

“ I live in a cottage on the road to Edithmead : there are six cottages in the row, and they have three privies which are placed along a ditch, so that the soil falls into it. The water in the ditch is usually quite stagnant, and the smell is very bad, particularly in hot weather, when the sun shines right upon it. There are 21 of us living in the six cottages, and all the soil and slops passes into the ditch. There are pigsties belonging to the cottages, the sullage of which also passes into the ditch. The water in the ditch is usually about a foot and a half below the surface. We all procure our water from another ditch on the opposite side of the road in front ; and there is no flow in this ditch, which is in places 6 feet deep, except in times of heavy rain. I have seen it quite empty in hot weather, and in summer the water is generally low. When the ditch was empty, we got our water from a pit about 10 minutes' walk off. The water in this pit was not so good as that of the ditch. The rushes in the ditch are cut two or three times a year. The water in the town is much better than that in our ditch : our water is worse when it gets low in the ditch.

“ The road is sometimes under water. The floods are about an eighth of a mile wide. In the road I have seen the water a foot deep ; it then lays for a week or 10 days, and at those times we must walk through the water to get to our cottages. I have seen the water inside four out of the six cottages. In my own kitchen, four years ago come May, it was 6 inches deep, and I did not get rid of it for a week or ten days. It came in this year. The floor is of brick. The flood last year was in the winter, and the bricks were not dry again before Midsummer ; this year it is not likely they will be dry sooner. The hearth is level with the floor, and when the water is in the kitchen, we make the fire on a grate raised above the water. The cottage I live in is my own property. I used to let one part ; my tenant left last August. The room I have spoken of is the one we generally live in, but since the flood I am obliged to go into the other. I cannot find a tenant for the room which has been flooded, and it will stand empty till it gets dry ; if it was dry, I could no doubt find a tenant for it. I was asked about a room some time past, and I told the person I could not let the dry room, because I was driven out of the other and wanted it myself. I got from my last tenant 3*l.* a-year for one end of the cottage. The water has been quite over the road four times in the last 11 years. Every year the water is nearly up to the road, but not over so as to injure anything. I mean for getting in people's houses.

“ Some of the people say they are ill owing to the floods. Henry Morse had the ague last year, he was laid up some time, and obliged to go to the parish. I am a married man, and have three children ; my wife is not strong ; she has generally got a cold, and says it is the damp of the house that gives it ; she grumbles about it and the damp house. One of my children has been laid up during the last year ; I don't know

what the complaint was. I tried to get the parish doctor, but couldn't. The child had red spots about him. My wife was laid up 15 weeks last year, and then they would not let me have the parish doctor. I have not had the bill from the doctor yet. The doctor generally costs me a pound every year.

"My wife lived in service before I married her. She lived last with Mr. John Adams, and was then quite healthy and strong, but she has never been well since she has lived down in this lane.

"We try to keep the water out of our cottages by a bay before the doors; there are more cottages along the road, and I have seen the water round them as round my own.

"I am obliged, during the floods, to wade through the water when I go to my work. My wife and children must remain in doors when the water is out.

"When I am in work I earn 1s. 4d. a-day; in summer I get more, sometimes 2s. to 2s. 6d. a-day. In winter I can only get work half my time; this winter I have only worked half my time.

"I think my part is sooner under water than any other part of the parish."

Henry Morse states:—

"I live next door to Charles Butt, and have lived in the same cottage eight years. I was laid up with the ague four or five months ago. I had it for six or seven weeks. I had no doctor, but took some stuff for it which I got of the druggist, and which cost me 3s. or 4s. altogether. I was in work when I was taken with the ague, but my wife at that time had a young child, and could not go out to work. I had no relief from the parish then. I have had some work since I had the ague, but not much. When I had the ague, I was free to do how I could; sometimes I had victuals, sometimes none. I pay 4l. a-year for my cottage, besides rates and taxes. I have no pig myself. When the water is up the neighbours take their pigs out of the styes, or they would be drowned, and put them into neighbours' styes further off. Some of the cottages have gardens, and the things are sometimes spoilt by the floods. I had some potatoes and cabbages spoilt last year.

"My next door neighbour has started and left his family to the parish, his wife and two children; the woman is sometimes laid up; she complains of her head and throat. Mary White also, who lives next door, but one, had the ague when I had it. I have seen the water on the road from a foot to a foot-and-a-half deep; it comes up through the stones into my cottage; one year, in May, I took in a family who lived 20 yards lower down the road, and who were drowned out. The water was a foot deep in their room, but in mine it only came up through the joints of the stones, without running over the floor. The walls of my cottage are of brick, and they are always more or less damp, and on that account very cold in winter.

"At day-work I get 1s. 4d. this time of the year, but I don't often get full work in the winter. Sometimes I work one day in the week; sometimes two or more, according as I can get something to do. Lately I have been working job-work; I don't know what I shall get for this. Sometimes I get 7s. or 8s. a-week, sometimes 9s., sometimes not 1s.

"I don't think I am worse off than the other labourers in the

parish; some men's houses are worse than mine, and I don't know of any better down that road."

With reference to the usual diet and the state of health of this class here, *Mr. F. R. Chadwick* states:—

"The greater number of the poor here are very badly fed, and I generally find it necessary to order them nourishing diet. Their usual food used to be potatoes; but since the failure of this crop, they eat greens, parsnips, and any garden produce they can get: I have seen some living almost entirely upon horsebeans; this I saw last year, and have no doubt that many of them have little other food now. I should say the majority of them never taste meat from year's end to year's end. I am sure they have not the means to buy it.

"The effects of the bad living and of the marsh miasma are in a measure counteracted by the frequent fresh breezes from the sea."

The emanations of the ditches on the Flat have been already alluded to; but as, in addition to their effect in the production of disease, they no doubt, from their offensiveness, have a most marked influence in preventing visitors from frequenting the town, and thus injure its prosperity. A few other passages concerning them may be added.

Mr. Hobbs states:—

"I have been in the habit (almost constantly during the summer season) of coming to Burnham, and in my drive I have had occasion to observe the state of the drains and ditches at the sides of the road, which are of themselves a complete nuisance. There are many places where (knowing the spots) I have actually held my breath in passing. These in summer may be smelt for 100 yards before and after passing them, and there are four or five such between this and Highbridge."

Mr. Gunter states:—

"The ditches in the town and throughout the parish are nothing better than elongated cesspools."

It may be as well to consider for a moment the purposes that these ditches are intended to serve.

Mr. Buncombe states:—

"The ditches in the marshes are of use,—

"1st. As fences to keep in the cattle.

"2nd. As drains for the surface water, which is let into them from the fields by gutters or grips.

"3rd. As reservoirs of water for maintaining the humidity of the soil in the hot seasons.

"4th. As reservoirs of water for the supply of the cattle. I know of no other use of the ditches."

Now it is clear from what has been already stated, that for each and all of these purposes they are at times utterly useless; and there can be no doubt that for the main purpose, viz., that of maintaining the humidity of the soil in the hot seasons, they are even at the best very inadequate. I am not in possession of information as to the quantity of land occupied by the ditches, but

have no reason to suppose the proportion of the ditch to the field surface, to be less than that calculated by Mr. Donaldson, from measurement of the Woolwich marshes, viz., $\frac{1}{24}$ th of the entire area—a proportion which would give about 150 acres of ditch and rhyne surface in the parish of Burnham.

I shall conclude this part of the subject by giving an instance of the actual effect of thorough drainage upon some land on the side of the Brent Knoll, and the opinion of two persons well qualified to judge as to the probable effect of such treatment upon the land of the Flat generally.

Mr. Reed states:—

“I own land in Burnham, and in the adjoining parish of Brent, where I am also entitled to the reversion of about 700 acres of land, with the royalty of the manor. I saw the other day a piece of land on the west side of the Knoll, which has been lately drained; it was drained last winter. One of my tenants who occupies the next field considers this land to be worth 15s. an acre more yearly. I consider it worth 10s. an acre more myself. The herbage upon it is fine, and better than upon the land next to it. In former years I could not walk over the same field in winter, on account of the springs, without getting over my boots; now I find it the only place where I can manage to keep dry.

“I am going to drain some land there next year, and I confidently anticipate great benefit from it.”

With regard to the probable effect of subsoil drainage on the land in the Flat, *Mr. Reed* states:—

“I have no question, that if the land in the Flat were well drained it would much increase in value. I was a practical farmer myself for several years in this parish.”

Mr. Buncombe states:—

“I have no reason for supposing that the land in the Flat would be injured by draining. The land on the summit of the Knoll produces as much grass as any land in the Flat.”

“I have no doubt at all, that if the means could be found for thorough draining the land in the Flat, and irrigating it in the summer, that it would much improve it, and increase its value. No irrigation whatever is practised on the Flat, and I am not aware of any land being irrigated on the side of the hill.

“The two main difficulties under which the Flat labours are, to get rid of the surface water quickly after heavy falls of rain, and to retain a sufficient quantity of water for the summer or dry season. Under the present system, the surface water might be got rid of much quicker by deepening and widening the outfalls, and in summer, the water might be kept up by dams. This I think would much improve the Flat.

“I have never heard of any specific plan being proposed for the improvement of the outfalls; and I don't think that any plan of the kind would meet with general assent from the landowners and occupiers. I think that no great improvement of the drainage of the Flat can ever take place, except by the intervention of some authority armed with legal powers to enforce it.”

Mr. Buncombe, at my request, has furnished me with the following information respecting the capabilities of the land in its present condition for the support of stock.

“On inquiry of the farmers in different parts of the parish, I find that the average calculation of the quantity of land required to feed a cow summer and winter is about three acres. Some farmers (the usual size of the farms is about 50 acres) occasionally rear a few young beasts (heifers) to come in in the place of others when sold out. Some a few sheep. Some keep a horse or two, and these are not calculated. It appears that the average quantity of hay bought and brought into the parish is equal to or greater than the quantity sold and carried out of it.”

It thus appears that 300 acres of land in the parish of Burnham,—the soil naturally of the very richest quality,—is now capable of supporting only 100 cows, summer and winter.

To show the proportion of stock, that land is not only capable of supporting, but a certain area of it does actually support, the Board will permit me to give, from the Report on the Sanitary Condition of the Labouring Population of Great Britain in 1842, the following particulars of about 300 acres of meadow land under sewage irrigation, in the suburbs of Edinburgh. It is there stated that the owners and occupiers of this land, being the defendants to a law-suit instituted to try the right to the sewage of the city, declared in support of their case, that the grass which in virtue of irrigation these meadows produce, supports in Edinburgh 3,300 cows, and in Leith 600 cows during the season.

It must not be supposed that in giving this example, I intend the inference to be drawn, that the land in the parish of Burnham, with its present means, may be made equally productive. Its command of sewage water is out of all proportion with such a result. There can be no doubt, however, that by the use even of the limited quantity at command, a very large increase of production would take place.

2. **THE TOWN DRAINAGE AND WATER SUPPLY.**—The provision for the surface drainage of Burnham consists only of the ditches in and around it, and in this respect it is in no better condition than the agricultural portion of the parish, the very centre of the town being liable to frequent inundations.

The provision for the disposal of the excrementitious refuse and the house slops consists either of covered cesspools, of open holes or pits, of open stagnant ditches, or of drains to the sea.

The covered cesspool is the mode in common use in the centre of the town, where the sandy substratum is not only favourable for their construction, but also permits the escape of the fluids when they are in use.

The open hole or pit is the mode commonly adopted in those houses lying towards the outskirts of the town, and not conveniently placed for drainage into a ditch.

The open stagnant ditch is invariably adopted wherever it lies convenient for the purpose, and as the town on the land side is bounded by these ditches, and its area here and there traversed by them—it is the mode in most common use.

A few of the houses only, facing the sea, have drains through the sea-wall.

The town is chiefly supplied with water from wells of small depth, sunk in the substratum of sand; but many of the inferior class of houses, situated near the outskirts, have no other water at command than that contained in the stagnant ditches.

The well-water is of an extremely hard quality, as the following analysis, by Dr. Lyon Playfair, of two samples—one taken from a well on the north, and the other from a well on the south side of the town—will show:—

Designation.	Hardness.
Mr. G. Reed's Well, Burnham . . .	34°
Well, Unity-place. , ,	35°

The evidence will best exhibit the condition of the town as regards its drainage and water supply. *Mr. George Haynes* states,—

“ I have a cesspool to my house, which is three yards distant from it, and is lined with brickwork; it is four feet square and three feet deep, and is cleaned out about twice in the course of the year; the privy is placed over it. I pay 5s. each time for emptying the cesspool. The matter is disposed of by being buried in the garden. The fluid matter overflows into the road, which is of sand, and a public thoroughfare in the town; in the summer it smells very badly.

“ I get my supply of water from a well about six feet deep, which is sunk through the sand. The water is sometimes impure and discoloured, especially after rain; it is hard, and does not make good tea. I possess other houses, and the tenants complain of the bad state of the drainage.”

With regard to the surface drainage, the same witness states,—

“ I have seen the water standing three or four inches deep in the streets; this has occurred once this year; the water on that occasion was over the streets during an entire fortnight. It was over the main street of the town, which was quite impassable for foot-passengers; stepping-stones were placed for persons going to the post-office. The foot-path is at the level on the road, some coal-ashes were put down to form it.”

Mr. Thomas King states,—

“ I own several houses, having no other drainage than into cesspools, which are lined with stone or brickwork, but are not water-tight. The fluid drains away through the sand. The cesspools are emptied about twice a-year, and the matter is put into holes dug in the sand to receive

it. The emptying of the cesspool of my own house costs me 20s. yearly.

“The cesspools are about 30 feet from the well, but the drain from the water-closet passes within 10 feet of the area. I have found the water of the well affected by the percolation of the matter of the drain. I cannot now use the water for culinary purposes, and have not been able to do so for two years past. I borrow water from my neighbours, which is fetched by my own family, otherwise it would cost me about a shilling a-week. My well is in the sand, and is from seven to eight feet deep, the usual depth of the wells here; the water in it is about four feet deep. The water of the wells sunk in the clay is of about the same quality as that of the wells in the sand.

“A respectable tenant of mine, in an adjoining house, has given me notice to quit, in consequence of the impure state of the water.”

Mr. Norris describes the state of the ditch system: he states,—

“A nearly always stagnant ditch passes along at the side of the main street, in front of my house; the privies of 11 houses drain into this ditch the whole both of their fluid and solid matters, and it receives, in addition, the drainage of a larger number of animals kept by the occupiers of the houses. The first house is tenanted by a man who keeps donkeys, pigs, ducks, and fowls; he is a poulterer; his yard is six yards wide, and 20 yards long. The occupier of the second house keeps a horse, and usually two pigs. The occupier of the third keeps a horse. The four next are cottages, the inmates of which generally keep pigs. Next to these is a double house, used as the parish school, which is attended by, on the average, 60 children, and which has two privies. The last house has one privy, which is much exposed, and a public nuisance. The dung of the whole of the animals kept by the occupiers of these houses either drains or is thrown or swept into the ditch, with exception of some of the horses’.

“The road alongside this ditch is the principal thoroughfare from the station to the church, and the adjoining parishes.

“There are, on the average, about 150 people who use the privies, and the whole of whose excrement passes into the ditch, besides that of the animals.

“The ditch was cleaned out about three years ago, and the matter was then thrown into the road, where it lay for more than a month, and vehicles were obliged to be driven through it at first, as it spread over a good deal. It was at last carted on to the land for manure.

“The four cottages were formerly called Bug-row, they are now called Parliament-row.

“The water in the ditch beforementioned, when it reaches a certain height, overflows into a mud-catch, communicating with another ditch, and at these times—that is, when swollen by the surface-water—there is a slight current in it. The mud-catch is about 56 yards long and 15 feet wide, and from 9 to 11 feet deep, and it receives, in addition, the refuse of five houses; one of these is a school, another a bakehouse, the third is occupied by a tailor, with a wife and 10 children, and the last, my own house, who have a wife, three children, and a servant.

“By the time the ditch has reached the point opposite *Mr. Reed’s* gate, it has received the whole of the refuse of 30 more houses, and at seven of these 102 pigs are now kept, and at times two horses besides,

and the sullage of these animals also passes into it. The inmates of 16 houses in Love-lane, take the whole of their water from the opposite ditch to drink.

“In Oxford-street there are four houses having only one privy, with a cesspool which runs over occasionally; the well is seven yards from the cesspool, and the water cannot be drunk, being affected by the drainage. The water was good when the well was first sank. The first house was occupied by a man who sold fish, and who used to go to the pump to cleanse them, and throw the foul water on the surface of the ground, and it soaked into the well.

“The next house to these four has a privy with an open cesspit; the next adjoining is a school, with a privy and an open cesspit, which is most offensive. The next is a large house divided into three tenements; it has one privy, which discharges into a ditch at the back, where the matter stagnates; close to this is a bridge to a church path.

“In Victoria-place there are 19 houses having 14 privies, which all discharge into cesspools—some close, some open; one of these houses is occupied by a butcher, who keeps ordinarily two horses and two pigs; he has an open cesspit seven feet square and the same depth, in which he deposits the privy soil and offal.

“I sustain a heavy loss, I have not the least doubt, by the bad state of this ditch. People will not come to my shop on account of the bad smells. I estimate the loss at about 20*l.* a-year; I could almost swear to it. The smells annoy me much. At times we are obliged to keep every door and window shut, shop-door and all.

“I had fever in my house nearly all last summer. I have a wife and three children, and my family have hardly had a day’s health during the year that we have been in the house; the children were attacked with scarlet fever.

“My wife has suffered ten times as much as before since she has been in this house; she now complains of dreadful headaches, particularly in the morning.”

The evidence of *Mr. Reed* will show how, under the natural difficulties of the site and the want of a general system of main sewers, persons even of large means and desirous of improving their drainage, are unable to do so; and are consequently exposed to the like evils and annoyances as regards accumulations of filth which surround the habitations of the poorest. He states:—

“I reside near the church at Burnham, and have premises which cost me upwards of 4,000*l.* with no drains. In the summer time I cannot go out by the carriage drive on the south-east side of my house, on account of the offensiveness of the ditch, which is the same as that described by the witness Norris. The drainage stands there quite stagnant, and Dr. Wallis told me last summer that it was poisonous to live near it, and Dr. Pope, who was a resident physician here, has said the same thing, and he added, that if I took a candle out on a quiet night the air over this ditch would take fire. If I knew how to improve the drainage I would do it. The upper part of this ditch and the open drains leading to it have, at times, overflowed, and the matter has laid in the road for days together to the nuisance of all in the neighbourhood. The last time it overflowed it cost me 5*l.* to get rid

of it. It has spoilt the well of water in my house, and I have been obliged to sink another to obtain proper water for the use of my family. The drainage of the churchyard passes into this ditch. Last winter I went to the expense of more than 7*l.* to fill up another small ditch, in order to keep the nuisance a little further from my premises. There is a small ditch, serving as a fence, at the back of my house, into which we are obliged to discharge the soil and fluid of the water-closet and privies, for we have no other means of getting rid of it. The soil is first conveyed in a covered gutter under the garden path, which has little or no fall, and frequently requires cleaning out. Last year I paid upwards of 19*l.* for repairs to and cleansings of this gutter. It rarely costs me less than from 2*l.* to 3*l.* a-year, and has for 13 years past: I should be within bounds if I said double the money.

“The ditch first spoken of, and which passes along the side of the road in front of my house, is so offensive in hot weather that we cannot go upon the lawn, and my family are driven to walk in the garden in the rear.

“My little girl is now home from school and ill in bed, and my medical attendant tells me that she is attacked with cholera. I have not the least doubt that her illness is caused by the effluvium of the ditches. I have myself in the summer time been attacked with vomiting through the smells, which are then insupportable.

“I have some years paid my medical attendant as much as 70*l.*, and on the average, I am sure not less than 30*l.* for attendance on my family.”

Mr. Gunter also speaks to the impossibility of efficiently draining his premises, and in addition he describes the pollution of the water of his well; he states:—

“I have a house in this town adjoining the churchyard, and have had for six years past. I bought a small property there, but the whole of the ground around it, and the parish ditch in front was so bad that I found it impossible to live near it. At that time the water from the drains, and mixed with the soil from the privy, occasionally flooded the back kitchen; and I may also say that the people living in some cottages in front used to empty the soil into or on the bank of this ditch.

“I rebuilt my house and raised it, and drained it to the only out-fall I could command, viz., the open ditch in front, into which the whole of the soil and slops of my house is now passed, and which, as an addition, receives the drainage of eight cottages and that of the churchyard.

“I had no means of adopting a better system of drainage or I should have done so. I have expended between 4,000*l.* and 5,000*l.* on the property, and it is now a question with me whether I shall continue to reside on it as I now do during a part of the year, which I certainly shall not unless the drainage is improved. Scarcely a person comes to my house who does not allude to the state of the drainage, and I consider my own drainage to be as good or better than that of any of the other houses. The parish ditch in front of my house was converted four years since into a barrel drain at an expense of 41*l.*, of which sum I contributed 26*l.*, and it merely removes the outfall of my drainage a little further off.

“ I have said that I live close to the churchyard ; the graves are made very shallow on my side of the yard ; I have seen them not more than four feet deep ; I have a well on my premises the water of which was formerly excellent, but it is now affected from some cause or other, and I attribute it to the drainage from the churchyard. We have no other water to drink, and are, therefore, compelled to use this ; I certainly don't fancy it.

“ It would be a great blessing to the poor here if public pumps were erected from which pure water might be drawn ; at present there is not a single public pump in the place.”

The same witness speaks to the following fact, which I give as an instance of the disgusting state of things that has been permitted to exist in this town.

“ Four years ago I bought some cottages opposite my house, and on taking possession of my purchase I found in the only room on the ground floor of one of them a stick placed across the corner that had served as the seat of a privy which was boarded in on one side ; the solid excrement lay in a heap in the corner, and the fluid was running over the floor. I heard a woman, who had lived in one of these cottages which she had been forced to quit, say, on leaving, ‘ Thank God for it, for I've never had a single day's health since I've lived here.’ She has been quite well since she left.”

The evidence of an agricultural labourer living in a court called Unity Place, on the south side of the town, will exhibit the condition of the tenements in which some of the lower class of the inhabitants are lodged.

John King states :—

“ There are four houses on my side of the court, and there are three rooms, a kitchen, and two bedrooms in my house. I have a wife and six children, three are under 10 years of age, the eldest is 16. My wife washes and irons when she can get such work to do, and has one of the rooms for her business. Seven of us sleep in one room ; we have two bedsteads in the room, and something on the floor ; myself and wife and the youngest child occupy one bed, the oldest boy (about 16) the other bed, and two boys and two girls the tick on the floor. I have had my health middling. Three years ago I was in a chill, and laid up. I was then under the doctor's hands nearly a quarter of a year ; I had the parish doctor : just before that my wife and four children was in the scarlet fever, and they had the parish doctor. They were quite laid up, and all burning with the fever like parched pigs. We all slept in the same room at the time ; my wife was in bed a great while, and ill for more than three months, and the children, too, for about the same time. I was at work breaking stones then, employed by the way-wardens, and had 8*d.* a-ton. I can't break more than a ton and a half a-day, and generally earn only 9*d.* a-day at this work, sometimes 10*d.* At times I can't even get this work, and have not anything to do for two or three months. I have lost one leg, and the parish allow me for my wife and children and self 2*s.* a-week. I am in work now, breaking stones ; but before I got this work I was out for three months. My eldest boy (nearly 16) sometimes gets a

little to do, he gets 4*d.* a-day when in work. My second boy is now at work for Mr. Clements, and gets his victuals and clothes. None of the other children yet work. When I am out of work I have nothing but the 2*s.* a-week from the parish, and what my wife earns by washing, which is sometimes 3*s.*, sometimes 4*s.* a-week, and sometimes less, and what my boy earns. I pay 2*s.* a-week rent.

“ At times since the fever, my wife has been laid up, and the children too, generally from colds and sore throats.

“ We go into the court through an archway, and there is no other way into or out of it except through this archway. There is a privy in the middle of the court, three or four steps from my door, and all the people in the court go to this one privy. Last year I reckoned them up, and made them about 60 who use the privy; there are 11 houses in the court. The privy has a bricked vault, three feet deep, four feet wide, and five feet long, and it is emptied about twice a-year, when the stuff is taken out in buckets and usually buried in a hole about 50 yards off. Most times the matter comes out through the wall of the privy, and the yard is nearly always wet with the stuff. It is very bad, and makes me sick there sometimes. Sometimes I burn pitch in the room to drive the air out of it. There are some nasty worm things with long tails, which come into the room from the privy, and afterwards turn into flies. My floor is of brick; the street near the court is sometimes flooded. I have seen the water in the court three or four inches deep. It floods the privy, and mixes with the soil in the vault and on the surface of the court. This last rain I had the water in my house over the bricks about an inch deep, and it was the same in my neighbours' houses. The room smells bad enough always.

“ There is a pump in the court, but we can't drink the water; we sometimes use it for washing the house; we get water of our neighbours out of the court when we can borrow it. My wife generally gets soft rain-water for washing from her neighbours; sometimes from one, sometimes from another.

“ The ash-heap is between the privy and my door, and the neighbours throw the stuff out of the chamber-pots on to this ash-heap; they throw all manner of filth there; there are no places for it but the privy and ash-heap. The ash-heap is taken away three or four times a-year. The slops are generally thrown on the surface of the court, which is always wet and nasty.

“ The slops are sometimes thrown in the street, where they lay till they sink away; sometimes they are 6 inches deep: the street is not stoned. After heavy rain, we are obliged to place bricks to go out. I have seen the water lay in the street three or four days or a week at times. The street is a principal thoroughfare to the church.”

The following extracts have reference to that part of the town lying near the sea, and frequented by the visitors.

Mr. P. H. Williams states:—

“ When I first knew Burnham, the houses were very few; since the lodging-houses have increased in number, but I believe I may say that I have never been into one of them that has had a pure atmosphere.

“ From Prew's-terrace, a drain leads to the sea-wall, the mouth of which is exposed, except at and near high-water spring tides, and the

matter draining from it smells most abominably, particularly in the afternoon, when the sun lays directly upon the wall. The Royal Parade is very bad: some friends of mine took lodgings in a house adjoining the Royal Parade, and were obliged to leave them on account of both their children having fever; from that house there is no drainage whatever, except into a small pit at the back door: these houses I have mentioned all front the sea, and constitute the best part of Burnham.

“ I called one morning to see a patient, lodging in one of them, when a very refined lady told me she had been compelled to smoke a cigar during the night, solely for self-preservation from the disgusting smells. I am certain this lady had never smoked before, and believe she has not since; it was a scented cigar.

“ There is no question that the ditch at Mr. Reed’s gate is most prejudicial to the health of his family.”

Mr. Robert Wakeham, the landlord of the “ Clarence,” the principal hotel, facing the sea, states:—

“ I have to say, as regards the state of the drainage in the first place, that when it rains hard I have the water in the yard a foot deep; sometimes it takes a day or two to drain away. It came into my parlour on one occasion, having previously broken up the cesspool. The water smelt dreadful and spoilt the carpet. I had a large family staying in the house at the time, which left immediately in consequence; they were paying me four guineas a week each.

“ That job cost me 5*l.* in the damage done to furniture alone. I have been here 12 years, and I consider that in that time the inundations have cost me full 50*l.* in the damage done to furniture, in alterations and repairs of cesspools, gutters, &c.

“ I have seen the water in Victoria-street, which is a principal street, for a fortnight together: a boat was floating in it; this water smelt very badly, being mixed with the drainage.

“ I have frequently had families in the house who have been prevented staying by the bad smells. Scores and hundreds of people have come to me and said, ‘ What a dirty place your’s is; we’ve heard of Burnham, but now we see it; at what time does the train go?’ The omnibus to the station starts from my house; I never see them after. I have no doubt that hundreds are driven from the place by the bad smells in it.”

The effect produced upon the health of the inhabitants by the accumulations of filth, and by the polluted water, is described in the medical testimony, as also the probable effect of this state of things if suffered to continue.

Mr. Board states:—

“ Every year in the summer scarlet fever has prevailed in the town, and particularly in Unity-place; but none of the cases I have attended have been of a very malignant sort. I believe it to proceed from the bad drainage of the place and the tainted water; I have learned that there is no drainage at all to the houses in Unity-place, and have noticed the filthy state of those houses and the unwholesome smells that proceed from them.

“ The streets of the town generally are in a very filthy state, and a miasma is given off from them and from the ditches, which is without

doubt prejudicial to the health of the inhabitants. If the drainage of the place is left in its present state, with an increasing population, I shall not be surprised to find malignant fever break out."

Mr. F. R. Chadwick states:—

"In the summer of 1847 there was a good deal of scarlatina in the town; but it was principally confined to Unity-place, no doubt arising from the accumulations of filth there.

"If the drainage is left in its present state, and the place increases, disease to a large extent must break out."

The foregoing description of the condition of the town of Burnham, as regards drainage and water supply, will apply in nearly every particular to the village of Highbridge and the hamlet of Edithmead.

With regard to the floods, it may be stated that Highbridge lies above their level, but that Edithmead is even more exposed to them than Burnham. Inundations, however, have occurred at Highbridge from defects in the river bank.

Mr. Reed states:—

"The water flowed in over the wall at Highbridge about two years ago, and did a great deal of damage. The landlord of the Highbridge Inn told me it cost him 80*l.* in the damage done to beer, spirits, furniture, &c. The water was four feet deep on the ground."

The house-drainage of Highbridge would appear to be even worse than that of Burnham.

Mr. John Adams states:—

"I inspected lately the drainage at Highbridge. The ditches at the back of the chapel, at the back of the market-house, and one close to the turnpike-road, are in a worse state than any ditches in Burnham."

Mr. Buncombe states:—

"I know Highbridge well. The house-drainage on this side is very defective indeed; I can't say that it is in a better state than Burnham in this respect, indeed I should say that it is in a worse state."

3. THE PAVING, CLEANSING, LIGHTING, AND WATCHING.—The parish roads and the streets of the town are superintended by two surveyors of highways, annually appointed in vestry, and who are not paid officers.

The condition of the streets is by no means satisfactory; many of them are not even metalled.

Mr. Hobbs states:—

"From one cause or other, either the indisposition of the vestry or of the inhabitants, the streets of the town are in a most unsatisfactory condition. With regard to the road in my own immediate neighbourhood, I purchased land which I have given up reluctantly to the public for a road. I have made repeated applications to the authorities to stone it, but they have always refused. On one occasion I told the waywarden that rather than the road should remain unstoned I would bear my share of the expenses (calculated on the proportion of the poor's

rate) of doing it, the whole being paid by the street. I was unable to effect this."

Even the principal street is not raised above the level of the floods.

Mr. P. J. Petherick states:—

"It does not require a heavy fall of rain to flood Victoria-street, the principal street in the town. There is no raised part to it, and the whole width is flooded. I have heard visitors say, looking at the water, 'This is a watering-place indeed!'"

With regard to the condition of the roads generally, the *Rev. F. F. Beadon* states:—

"I have known times when, from the state of the roads, it has been quite impossible for people to come to church; but this is not of frequent occurrence."

There is no organized system of scavenging, and no public yard for the reception of the dry refuse of the town.

Mr. Reed states:—

"There are several open spaces which are almost impassable from the ordure and filth of every description thrown there by the poorer classes, who have no other places to which to take such matters. One of the worst of these is crossed by the path to the church."

There is no public lighting in the town, and no public watching.

4. THE BURIAL GROUND.—The burial-ground is attached to the parish church, and is within the town. It lies open to the sea on the west side, and is not much pressed upon by houses on any side. The extent of ground, including the church, is 2 A. 1 P., and it is by no means crowded with graves.

The ground slopes inland; the substratum is sand, dry in the higher parts, but in the lower much loaded with water.

The *Rev. George Chambers* states, with respect to it:—

"I have seen, in the lower part, coffins laid in water several inches deep."

Richard Cox, sexton, states:—

"The churchyard consists entirely of sand; the surface of the ground is uneven, being considerably higher next the sea than on the other side. On the side next the sea I go generally five feet deep, but could go deeper if required; the ground is quite dry there. On the other side I cannot go more than four feet without finding water. I have seen a foot of water in the graves, and nearly every grave in the lower part has water in it. I generally give two feet between each grave, but the sand sometimes tumbles in. The bodies last longer in the wet than they do in the dry. In the wet part I can take up a corpse in 16 years, in the dry a corpse is fit to be removed in 10 years. There is room in the yard for a good many years to come.

"I have not buried inside the church for 45 years past. A coffin taken out of an old vault, which had been there 35 years, still had the cloth upon it in good preservation."

I now think it right to lay before the Board the substance of a statement made to me by Mr. Hobbs, relative to the steps that have been already taken by the inhabitants of the town to procure powers to enable them to effect its improvement; and the more especially as it appeared that their efforts have encountered much opposition from the owners and occupiers of land in the parish. Mr. Hobbs stated in substance—

That, in the early part of 1845, finding the drainage and water supply to be extremely defective, he attempted, but unsuccessfully, to bring about a better state of things by a voluntary measure amongst the inhabitants.

That, towards the end of the same year, he caused the requisite notices to be issued for an application for a local Act in the next session of Parliament, and immediately thereupon convened a public meeting of the landowners and inhabitants of Burnham to consider the measure, which meeting was very fully attended, and passed the following resolution, viz. :—

“ That such measure is of the utmost importance, and one of absolute necessity, and that it ought to be carried out without delay.”

The meeting moreover appointed a committee to superintend and carry out the measure.

That the committee settled the details of the measure, and invited the co-operation of the landed proprietors in carrying it out.

That the landowners subsequently convened a meeting at Highbridge, and determined to oppose the measure; and that upon this the committee, rather than meet a contest in Parliament, finally came to the resolution to abandon it.

It further appeared from Mr. Hobbs's statement, that in the early part of 1846, he communicated with Lord Lincoln, with a view to Burnham being brought under the operation of the Health of Towns Bill; that in the next session Burnham petitioned the House of Commons in favour of the Bill brought in by Lord Morpeth; and that immediately after this Bill became law they petitioned the Board for inquiry.

I also think it right to allude to the opinions entertained as to the actual and probable depreciation of the value of the house property in the town in consequence of the present defective sanitary arrangements.

Mr. Johns states :—

“ I have no doubt that the value of the house property in the town is depreciated by the bad state of the drainage. Three families from Bath last summer would have visited the place had the state of the drains been less offensive. I know this of my own knowledge. The feeling is general in the town that visitors are kept away by the bad smells in the summer. Houses do not let so well now as formerly.”

Mr. Reed states:—

“ I have heard the town spoken of, when travelling, in the county, in London, in Hampshire, and even as far as Suffolk, as one in which no person would live who had the means of living elsewhere, on account of the bad drainage. I have seen the matter constantly alluded to for three years past in the public newspapers; the place is notorious.”

Mr. P. H. Williams states:—

“ The town, which is a watering-place, suffers much from the bad state of the drainage. Visitors very soon leave it on account of the bad smells, and I don't think they come twice. If it were well drained, it would be a delightful place, for women and children particularly. The sands here are six miles in extent, and are perhaps the finest in England.

“ I know many who have taken lodgings here, and within a week the offensive smells have driven them away. The state of the drainage must affect the property of the town.”

Mr. Gunter states:—

“ I have not the least doubt that the bad state of the drainage has a very serious effect upon the value of property here.

“ The senior physician of University College, London, came down last year, with the intention of bringing his family, but he changed his mind on seeing the disgusting state of the drainage of the lodging-houses.”

The *Rev. F. F. Beadon* states:—

“ There can be no question that the town suffers as a place of resort for visitors from the bad state of the drainage. I have always thought that property in it would be improved by better drainage, and no doubt the landowners would feel the benefit of any improvement.

“ I feel much interest in the inquiry that is now taking place.”

Robert Wakeham states:—

“ There is a difficulty in letting houses now, which I believe to be in consequence of the state of the drainage. They do not fetch the money they used. I think the rental of the houses generally in the town has come down fully one-third since 1842, from its being less frequented by visitors. I don't do the business I did before that year.”

RECOMMENDATIONS.

I now approach the consideration of the measures and of the more important of the works which appear to me to be the best calculated to ensure the removal of the evils that have been shown to exist, and which may be classed under the following heads:—

1. GOVERNMENT..
2. WORKS OF WATER SUPPLY.
3. WORKS OF REFUSE AND SURFACE DRAINAGE.
4. WORKS OF SUBURBAN DRAINAGE AND IRRIGATION.

Before entering upon this, however, it is necessary to premise that the works about to be described, insomuch as they differ

in character from or exceed those ordinarily recommended, are submitted solely for the information and consideration of the Board and the parties interested; and are in nowise to be regarded as arbitrary recommendations on my part. There are many difficulties in the way of the proper treatment of this case, the principal of which are, the small size and scattered distribution of the town and village area as compared with the large extent of flat agricultural area; and the antagonism, as regards parish affairs,—arising in the first instance, I conclude, from a supposed opposition of interests,—now subsisting between the inhabitants of the town, and the owners and occupiers of the land: but, notwithstanding these difficulties, I have endeavoured to deal with it as a whole, and in the way which I conceive to be most conducive to the interests of all concerned. It has been my main object throughout the inquiry to convince both parties that their interests are identical, and that, by their united action, the evils now existing may be removed with advantage to each.

1. GOVERNMENT.—I recommend that the Public Health Act be applied to the district, included within the boundaries hereafter described; and that, in addition,—but only by and with the consent of the majority of the owners and occupiers of land,—powers be asked of Parliament to enable the Local Board of Health to effect the drainage of the whole or any portion of the suburban district.

Boundaries.—That the present parish boundaries be the boundaries of the new district.

Constitution of Local Board of Health.—That the Local Board of Health to be elected under the said Public Health Act shall consist of nine persons, and that the entire number shall be elected from the whole of the said district.

That one-third in number of the said Local Board of Health shall go out of office on the 25th March in each year subsequently to that on which the said election takes place.

That every person shall, at the time of his election as member of the said Local Board, and so long as he shall continue in office by virtue of the said election be resident as in the said Public Health Act, 1848, is required, and be seized and possessed of real or personal estate, or both, to the value or amount of not less than five hundred pounds, or shall be so resident and rated to the relief of the poor of some parish, township, or place of which some part is within the said district, upon an annual value of not less than twenty pounds.

2. WORKS OF WATER SUPPLY.—It has been shown in the former part of this Report, that the inhabitants of Burnham are at present supplied with water either from wells sunk in the substratum of sand, or from the ditches surrounding the town; that the water derived from the former of these sources is of an

extremely hard quality, and that the supply generally is in quantity insufficient, and liable to the most offensive and injurious pollution.

It has also been shown, that in respect of its water supply the town is better off than the remainder of the parish, which is exclusively supplied from the ditches, or from holes dug in the bed of clay. The present supply then, being grievously defective, there can be no doubt that a large amount of evil would be removed by the substitution of one purer and in abundant quantity.

The question is, whence is this supply to be drawn? the deep substratum yielding only a chalybeate and a saline water, quite unfit for common use.

There are two sources from which to choose, one being the River Brue, above Highbridge; the other, the springs issuing from the sides of the Brent Knoll.

The Brue flows through Glastonbury, and brings down the surface-water of a very considerable breadth of country, chiefly alluvial, but partly consisting of the new red sandstone, and the lias formations. Its channel is below the level of the town, and if this source were adopted, it would be necessary to raise the water by steam, or other power, for distribution.

The springs on the Brent Knoll are ample in quantity, and the greater number of them issue at an elevation more than sufficient for the distribution of their water throughout the town, by gravity alone.

Supposing, then, these waters to be nearly equal in quality, as there is no great difference in their relative distance from Burnham, it may fairly be concluded that the Brent Knoll offers the best source of supply. Now analysis shows the springs of the Brent Knoll to be of superior softness to the water of the Brue; and I therefore unhesitatingly recommend them as the best source for the future supply.

There are many of these springs issuing from the sides of the Knoll, and in deciding upon those to be adopted, the chief points for consideration will be their position and the degrees of hardness of the water they furnish.

The following Table exhibits the results of Dr. Lyon Playfair's analysis of samples of these springs and of the Brue water, in juxtaposition with those obtained from the well-waters of Burnham:—

	Designation.	Hardness.
1	Mr. G. Reed's well, Burnham	35°
2	Well, Unity-place, Burnham	34°
3	Spring, Lady-well, East Brent	28°
4	Spring, Gould's-pond, south-west side of Knoll .	20°
5	Spring, top of Gally Acre, East Brent	18°
6	Spring, Puddy's Four Acres, west side of Knoll	15½°
7	Water of the River Brue above Highbridge .	22°

It thus appears that while these springs vary very much in hardness, all of them are less hard than the well-water of Burnham, and that one of them is softer than the well-water to the extent of more than half; and it so happens that the softest of them, No. 6, is precisely that which is the most conveniently placed for the supply of the town, and as this, with other springs near it, and probably of about the same quality, is, I am informed, in ample quantity, I therefore recommend its adoption.

The future works would consist of a reservoir on the Knoll, and of a system of pipes laid from it to Burnham, Highbridge, and Edithmead, for the conveyance and distribution of the water.

The size of the reservoir would be dependent on the minimum volume of water discharged from the springs.

The system of pipes would consist of a five-inch main diminishing to sizes which would meet the requirements of the streets and houses to be supplied. The supply would be on the constant principle, and in quantity unlimited, and each house would be furnished with the minimum accommodation of two orifices of discharge, one communicating with the kitchen, and the other with the water-closet. From the former of these orifices a full supply of water would be drawn for the various domestic purposes; and from the latter a supply for the instantaneous removal from the houses of excrementitious refuse.

In order to save the expense of compensation to landowners for carrying the main across private property, it might be laid nearly the whole way beneath the surface of the public roads, unless an arrangement could be made so that a saving might be effected by taking a more direct course.

Upon the imperfect data before me, I estimate approximately the cost of the works for the storage, conveyance, and distribution, as described, of the water throughout the town of Burnham, the village of Highbridge, and the Hamlet of Edithmead, at 2,400*l*.

3. WORKS OF REFUSE DRAINAGE.—To effect the refuse drainage of Burnham, Highbridge, and Edithmead, I recommend that the following works should be undertaken:—

- a.* The formation of a well at or near the central point A.
- b.* The laying of three main pipes from this well, one to Burnham, another to Highbridge, and a third to Edithmead.
- c.* The laying of a system of tubular drains in each of those places from the main pipes to the houses.
- d.* The laying of an overflow pipe from the centre well to a point at or near low-water mark.

The centre well would be about 10 feet in diameter, and of depth sufficient to insure an effective fall to the entire system of drains communicating with it.

From a rough calculation it may be stated, that for the main pipe to Burnham a diameter of one foot, for that to Highbridge a

diameter of nine inches, and for that to Edithmead a diameter of six inches would be ample.

The branch pipes would be of smaller dimensions, and the pipes communicating with the houses of three and four inches diameter only. Every house would have at least two communications with the system; one from the kitchen or washhouse, the other from the water-closet, so that the whole of the slops and excrementitious refuse produced might be instantly conveyed through it to the centre well.

For the overflow-pipe a diameter of a foot would suffice: but this pipe would be used only to discharge that portion of the sewage water which will necessarily be wasted before the full demand for it shall have arisen, or at those times of the year—if there should be such—when the demand shall have ceased.

The centre well would have a communication with the engine erected for the irrigation of the land.

At Highbridge and Burnham a portion of the street surface water may be passed into the system.

The entire system of pipes would be of earthenware, and the whole might be manufactured from the clay at Highbridge.

I estimate—approximately only on account of the imperfect data before me—the cost of these works at 1,700*l*.

4. WORKS OF SUBURBAN DRAINAGE AND IRRIGATION.—On the ground that the public health is injuriously affected by the humid and fœtid exhalations arising from the frequent inundations of portions of the Flat; from the stagnant ditches; and from the large extent of wet, marshy surface, almost constantly exposed to evaporation; and with the full conviction that these causes of sickness may be removed, not only with the best effects upon the general prosperity and comfort of the population, but with much positive benefit to the land,—I have recommended, that by and with the consent of the majority of the owners and occupiers of land additional powers should be asked of Parliament to enable the Local Board of Health to effect the drainage of the whole or any portion of the parish.

I propose now to give a brief description of the works which appear to me to be best calculated to effect the objects proposed, assuming that the whole extent of the parish is to be treated; but I should premise that the magnitude of the works to be undertaken may be adapted to any less area, however small, if thought desirable, although not without a sacrifice of economy in proportion to the reduction of area. The works may be divided into three classes, viz. :—

1. Works of surface drainage.
2. Works of subsoil drainage.
3. Works of irrigation.

Works of Surface Drainage.—To effect the surface drainage of

the district, I propose to form three lines of main watercourses across the Flat in a direction nearly north and south, with outfalls into the River Brue, and such other secondary lines as may be necessary.

The width of the main lines would be graduated, decreasing from the outfalls upwards, so that an equable flow might be maintained throughout, and it would be sufficiently large to permit the prompt discharge of the produce of heavy storms when the outfalls are open, and—with the additional capacity of the secondary lines,—its storage during the short periods when they are closed by the rising of the tide at the springs.

The depth of the entire system of watercourses would be such that a level of water might be maintained throughout sufficiently low to permit at all times the free action of the subsoil drains; but as this level will be dependent upon the depth at which the subsoil drains will be laid, it can only be determined when that shall have been fixed.

In forming both the main and secondary lines, I propose to make use of the courses of the present rhynes and ditches lying conveniently for the purpose, with the double object of avoiding any further division of fields, and excavation of soil that may not be absolutely requisite; and as the ditches are now far more numerous than necessary, I would, wherever the conveniences of the farm permitted, and the expense justified their abolition, fill them with the spoil produced in widening and deepening those ditches which would be adapted to the new system.

By the execution of these works of surface drainage the land would be in a condition to receive with effect the second class of works, viz. :—

The Works of Subsoil Drainage.—The outfall having been provided, these works are of that simple character that any full description of them is quite unnecessary. Before commencing them, the two main points to be determined will be the depth, and the distance apart at which the lines of drains should be laid; and these can only be satisfactorily arrived at by a careful examination of the soil. I may state, however, that I am inclined to think that the 2-inch tubular drain, laid at a depth of 3 feet, with the lines 25 feet apart, will be found the most economical and effective.

The Works of Irrigation.—The source of supply of the water of irrigation is the first point to be determined; and I may state that I propose, for the purpose, to make use of the whole of the sewage water conveyed from the houses by the system of works of refuse drainage before described to the point A. with such addition of liquid refuse from stables and cowhouses as can be brought into the system, and to make up the full quantities required with pure water drawn chiefly from the River Brue.

To conduct to one point, raise, store, and distribute this water, I propose to sink a second well, adjoining that at the point A,

having a communication with it, with the system of watercourses, and with the River Brue: to erect a steam-engine of the requisite power; to form a sufficiently capacious storage-reservoir, and to lay a system of distributing pipes over the Flat.

The well would be similar to that before described for the refuse drainage, and its communication with the River Brue might be effected by means of an earthenware pipe leading into that conveying the sewage from Highbridge, while that with the system of watercourses might be established simply by an overflow from them.

The engine would be placed at the centre wells at A. and its power would be determined upon a calculation of the quantity of water to be raised to the requisite height in a given time. Now assuming the total quantity as equivalent to a depth of four inches, which would be sufficient for eight irrigations of half an inch each, over 3,000 acres of meadow and pasture; that this quantity is to be applied to the land in the six warm months of the year, from April to October; and that to effect its distribution it must be raised to an average height of 20 feet; an engine of 30-horse power only would be necessary to accomplish this labour, which would be performed with the consumption, at very moderate working, of 200 tons of coal.

The reservoir might be placed at any convenient spot, and if a full supply of water could be procured from the River Brue at all times during the dry months, its size need be sufficient only for the storage of the sewage water during the winter months; if, however, the supply from the Brue, or the other sources could not be depended on at all times, the capacity of the reservoir must be increased accordingly.

The system of distributing-pipes would be connected with the pipe leading from the engine to the reservoir, and would extend throughout the district, so that every part might be irrigated at will. The pipes would be of earthenware, and they would be laid at a depth of about six feet beneath the surface of the ground, and in parallel lines branching from a main trunk, but subject to modification in order to suit the present division of the land into fields. A branch of the system, having the extremity properly capped and secured, would be brought up to the surface where requisite, so that the water being turned on, it might lead from the orifice over the field to effect the irrigation desired. It is assumed that one of these orifices would be sufficient to effect the irrigation of 30 acres of land,—the branch being brought up to the surface at the point of intersection of the boundaries of four fields of seven and a half acres each,—and on the accompanying plan the black lines are drawn at distances apart proper for this.

It is proposed to lead the water over the fields by moveable surface-pipes, in the manner now successfully practised in Scotland, where the pipes commonly made use of are of tin; in

convenient lengths of about six feet, and an inch and a quarter in diameter, one end of each length being so formed that it may be fitted into the opposite end of another length. The pipes are thus used:—the end of a length of pipe is first inserted into the orifice whence the head of water issues, and the fluid is allowed to flow from its mouth until the ground around is fully saturated; the end of another length of pipe is then inserted into the mouth of that already laid, and in this manner, by adding lengths where desired, the water is conducted over the whole surface of the field intended to be irrigated.

The operation is an extremely simple one, and so rapid that a man will thus irrigate from one to three acres of land in the space of a day. It is equally effective on land slightly undulating as on perfectly level ground, and it obviates the necessity of previously forming land into perfectly flat tables, often at a very heavy expense, in order to effect its irrigation.

I estimate approximately the average cost of these works of surface and subsoil drainage and irrigation, at 8*l.* per acre.

Having thus given an outline of the proposed works of drainage and irrigation, it may be as well to consider for a moment what their effects would be upon the condition of the population of the district.

By the works of surface drainage, the inundation of any portion of the Flat being effectually prevented, and the extent of the ditch and moist surface reduced, the sickness caused by the humid and foetid exhalations with which the atmosphere is now so frequently charged, would be lessened, and there would be a corresponding diminution in the amount of sickness, to the extent, indeed, that one disease which more especially afflicts the poorer classes—ague, would altogether disappear; the occasional flooding of the streets, roads, and houses, and the loss and inconvenience attendant upon that evil would be avoided; the offensive effluvia from the unchanged stagnant water of the ditches in the hot months would cease to pollute the air, and it is only reasonable to conclude, that the removal of this drawback to the attractions of the town would occasion a sensible increase to take place in the value of house property.

By the works of subsoil drainage, a change would gradually be effected in the condition of the soil, and instead of its being as now alternately reduced to the state of paste by the rain in winter, and to the hardness of a brick by the heat of the sun in summer; it would in time, from the ameliorating effects of the air and water admitted into it, become a fine mould similar to that on the Brent Knoll, which in no respect differs from it in natural quality. Another important result of the works of sub-soil drainage would be, that the ground by its dryness would become suitable for the breeding and rearing of stock, and that the present high mortality amongst the cattle kept upon the Flat would be materially reduced.

By the works of irrigation it may be safely concluded, that the productive power of the land would be very considerably increased; such a result having invariably followed the copious application of water to the soil in the proper season. With the permission of the Board, I shall give some examples of the actual irrigation of lands and of the results produced, for the information of those parties pecuniarily interested in the question.

I shall first adduce the well-known example of irrigation of grass-land at Edinburgh with sewage water, but, as I have before said, in this case the command of the liquid manure in proportion to the extent of land irrigated is so much greater than in the case of Burnham, as to preclude any comparison of results between them. I give it in order that those persons not acquainted with the subject may be made aware of the extraordinary fertility attainable by these means. It is thus described in a communication by *Dr. James Stark*, printed in a late publication by Mr. Chadwick:—

“The first thing done is to level and thorough drain the land, and divide it by proper ditches into small portions of about half an acre each. The land being all ready, or the last cutting being taken on the 30th or so of October, the watering of the next season’s crop commences the first week of November; the water is laid on a fresh portion of the divided meadow every other or every third day, so that some portions are always watering while the others are drying. The whole sewer water is thus constantly used, none being allowed to run to waste. Those who have a small portion of meadow to water, and more than an abundant supply, continue the watering of each piece for several days at a time; then intermit for a fortnight, and lay on the water again. Those who have a larger extent of meadow to irrigate, and of course a smaller proportional supply of sewer water, only irrigate each lot or division once every fortnight, the watering being continued in each division during the space of one day, and night also if practicable. That no water may ever be allowed to run to waste, the small half-acre divisions are classed into 14 or 16 larger divisions, and the whole supply of sewer-water is laid on each of these larger portions seriatim, once every 14 or 15 days, so that by the time the whole divisions have been once watered it is time to bring back the water to the first watered lot. The more water each portion receives the larger is the crop raised on it, and the higher the price got for that crop in the market; so that while the lots which are watered only once in the fortnight in general bring only from 23*l.* to 30*l.* per acre (Scotch) annually, those which receive a larger supply let for from 28*l.* to 50*l.* each per acre.

“The above watering is continued uninterruptedly at the same intervals of time to each portion during the whole year, so that it will be apparent that, though the whole meadow is not under water but only its fourteenth or sixteenth part, still the whole sewer-water is used for watering one or other portion of the divided meadow.

“The best meadows yield from four to five cuttings annually, the poorest three cuttings only. If allowed to stand too long on the ground, the crop rots at the root, its excessive weight causing it to fall over and heat, just like a white crop.”

The following are instances of the irrigation of land with sewage-water in a more diluted state.

Mr. Smith of Deanston states (Report on Lancaster)—

“The sewage-water of Mansfield, a town with 10,000 inhabitants, is applied in very dilute mixture with the water of a rivulet (the Maud) to irrigate some meadows belonging to the Duke of Portland at Clipstone. Here the result per acre is not so great as at Edinburgh, as the sewage-water is so much diluted with the waters of the Maud. The sewage water is, however, in this mode applied over a much greater extent of surface, so that it gives a greater return than is indicated by the rent per acre. The value is also kept down by there being no large town in the vicinity to take off the produce at high rates, the whole being used for the usual agricultural purposes, of feeding with green food or making hay.”

It appears that, however great the dilution of the sewage-water, the land will receive a full proportionate benefit. *Mr. Smith* states,—

“Whatever amount of nutritive matter is contained in sewage-water may be made available by carrying the distribution of the liquid over a sufficient extent of surface until the whole is absorbed.”

Mr. Lee (Report on Ashby-de-la-Zouch) gives an instance of the profitable application of sewage water in a very dilute state, from being mixed with the waters of a running stream. He states:—

“Many years since some meadows below the town were brought under irrigation with the water of the Gilwis How Brook, after it had received the refuse from the drains. The fertilizing matter is of course very much diluted, but the effect on the value of the land has been most striking. The meadows contain about 40 acres.”

Mr. J. Mammatt, the agent of the Marquis of Hastings, states, with respect to this land,—

“The land irrigated is worth 5*l.* per acre; without irrigation it would not be worth more than 3*l.* Certainly the irrigation of these 40 acres is worth 100*l.* per annum. There is land in the parish which, within the last 50 years, let for 25*s.* an acre, but now lets for 5*l.* an acre irrigated.”

It may be mentioned, that the “Sewage Manure Company” is now distributing water for irrigation in an extreme state of dilution, and with very marked effects.

This water is pumped, by steam power, from a creek, called the Stamford Creek, receiving the drainage of the sewers of the surrounding district, but communicating freely with the Thames; it is raised to the height of 70 feet, and conducted to the market-gardens in the Fulham Fields, through a system of iron pipes, from which it is applied to the irrigation of the land by the hose and jet. These works have not been in operation more than a few months, but there is even now every prospect of the most complete success.

I lately visited the establishment, and witnessed the application of the liquid from at least 20 jets. A market-gardener informed me that he had himself, from one spot on his ground, counted 12 jets playing at the same time. He showed me a crop of fine lettuces, not one plant of which he said would have been growing but for the irrigation he had effected.

I shall conclude with another extract from the Report on Lancaster, showing the progress that has already been made in overcoming the practical difficulties attendant upon the application of liquid manure to farm culture, and containing an instance of its application through the medium of permanent works, by a tenant farmer, even at his own expense.

Mr. Smith states :—

“ The practicability of the application of the sewage water for agricultural purposes is now placed beyond the category of project, for its merits have not only been fully investigated and approved by scientific inquiry, but all the points of usefulness have been fully established by practice. The pumping by engines, and conveying and distributing by pipes and hose, has been in practice on a farm near Glasgow, where Mr. Robert Harvey, a tenant farmer, has, at my suggestion, and at his own expense, on a 19 years' lease of the land, laid down pipes and erected a steam-engine of 12-horse power, and he has had them in constant and successful operation for four years over an extent of fully 300 acres. The soil is generally a stiff clay, the least favourable for the application of a liquid manure, and only a part of it has been thoroughly underdrained and subsoil ploughed. The liquid manure which this gentleman has applied is composed of the urine from a dairy, with an admixture of what is locally called ‘ pot-ale ’ from a distillery.

“ This mixture is somewhat different in its chemical composition from sewage-water, but in-so-far as the pumping and the distribution by surface pipes are concerned, it is virtually the same; so that the practicability and economy of the conveyance and the distribution of liquid manure may be looked upon as fully established.

“ The liquid is applied to the land in all its agricultural conditions. It is applied to grass for hay, for grass to be cut and used green, and to pasture, to stubble-land before being ploughed, to ploughed land preparing for green crops, and it has been successfully applied to promote the advance of turnip crops during their growth. The crops of all kinds have been uniformly superior to those raised with solid farm manure under similar conditions. The straw of the crops from the liquid manure has been more firm, and the grain heavier in quality.

“ Manure in the liquid form is in much more minute division; it admits of the most equal distribution; it is instantly absorbed diffusively into the body of the soil near the surface, and in that diffused condition it is ready to be taken up by the roots of the plants in every portion of the soil; the consequence is that the growth of the plant is always vigorous.”

DISTRIBUTION OF CHARGES.—In order to prevent the necessity of immediate heavy outlay by owners and occupiers for the execution of the works above described, I recommend that the

Board should sanction applications for advances of loans from the Commissioners of Public Works, or others, upon mortgage of the rates for the full period of 30 years, to be repaid by annual instalments of principal and interest.

Supposing the amount required to be thus raised, and to bear interest at 5 per cent., the annual charges upon the estimates given will be as follows:—

Works of Water Supply.

	£.	s.	d.
Annual instalment of principal and interest, at 5 per cent., on 2,400 <i>l.</i>	142	0	0
Repairs, &c. (say)	20	0	0
	<hr/>		
	£162	0	0
	<hr/>		

To meet this annual sum, in the present extent of Burnham, Highbridge, and Edithmead, a rate of 1*s.* 4*d.* nearly in the pound upon the house property would be requisite: an amount that certainly appears very heavy: but there is every probability that, with the improved sanitary arrangements, the two former of these places will largely increase; and with, and in proportion to, this increase, whatever it may be, a reduction would take place in the amount of the rate. It is also probable that houses situated in other parts of the parish, and even beyond the boundaries, would take their supply from the works, and this would assist in reducing the rate. To judge correctly of its amount too, it must be borne in mind, that all the existing charges for keeping in repair wells, pumps, and cisterns would cease, so soon as the works affording the new supply came into operation.

WORKS OF REFUSE DRAINAGE.—Upon the estimate given for these works, the annual charge will be as follows:—

	£.	s.	d.
Annual instalment of principal and interest, at 5 per cent., on 1,700 <i>l.</i>	100	11	8
Repairs, &c. (say)	20	0	0
	<hr/>		
	£120	11	8
	<hr/>		

To meet this annual sum, a rate of 1*s.*, nearly, in the pound on the house property would be requisite. In reduction of this charge, the existing charges for the repair and maintenance of cesspools, drains, &c., as well as the charges for sickness, resulting from the present defective works of drainage, will have to be taken into account; and it may be confidently anticipated in addition, a large amount to be derived from the sale of the sewage water for the irrigation of the land.

It may facilitate comparison between the actual cost to the

town of the present and future works here to repeat those passages of the evidence before given bearing upon the existing charges, although they have reference only to the more obvious of these.

Mr. G. Haynes states :—

“ My cesspool is cleaned out about twice in the course of the year. I pay 5*s.* each time for emptying the cesspool.”

Mr. T. King states :—

“ The emptying of the cesspool of my own house costs me 20*s.* yearly.”

Mr. G. Reed states :—

“ The soil (of the water-closet and privies) is first conveyed into a covered gutter under the garden path, which has little or no fall, and frequently requires cleaning out. Last year I paid upwards of 19*l.* for repairs to, and cleansings of, this gutter. It rarely costs me less than from 2*l.* to 3*l.* a year, and has for 13 years past. I should be within bounds if I said double the money.

“ Last year I went to the expense of 7*l.* to fill up a small ditch, in order to keep the nuisance a little farther from my premises.”

Mr. Gunter states :—

“ The parish ditch in front of my house was converted, four years since, into a barrel-drain, at an expense of 41*l.*, of which sum I contributed 26*l.*, and it merely removes the outfall of my drainage a little farther off.”

Some of the indirect charges are also alluded to.

Mr. G. Reed states :—

“ My little girl is now home from school, and ill in bed, and my medical man tells me that she is attacked with the cholera. I have not the least doubt that her illness is caused by the effluvia of the ditches. I have myself, in the summer time, been attacked with vomiting, from the smells which are then insupportable. I have some years paid my medical attendant as much as 70*l.*, and on the average, I am sure, not less than 6*l.* for attendance on my family.”

Mr. J. Norris states :—

“ I sustain a heavy money loss, I have not the least doubt, by the bad state of this ditch (a ditch opposite his house). People will not come to my house on account of the bad smells; I estimate the loss at about 20*l.* a year; I could almost swear to it.”

WORKS OF SURFACE AND SUBSOIL DRAINAGE, AND IRRIGATION.—Upon the estimate given for these works, the annual charge per acre will be as follows :—

	<i>s.</i>	<i>d.</i>
Annual instalment of principal and interest, at		
5 per cent., on 8 <i>l.</i>	9	8
Working expenses (say)	3	0

Total annual charge per acre,	12	8

The return for this annual rent charge of 12s. 8d. per acre would be found in the heavier and more numerous crops obtainable from the additional quantity of the fertilizing principle conveyed by means of the proposed works into the soil. The extent of this increase of production in various portions of land similarly treated has been already alluded to in a former part of this Report, and the owners and occupiers of land near Burnham will be able to form their own conclusions from the examples given. I may state, however, that I am confidently of opinion that the quantity of three heavy crops of grass annually may be taken as a safe basis upon which to found a calculation of the value of the future produce of the land if subjected to these works of drainage and irrigation. The value of such an amount of produce will be best known to the parties mainly interested; but whatever it may be, the difference between its amount and that of the present produce will show the estimated increase obtainable by the means proposed.

The amount of the losses sustained from the present excessive mortality amongst the stock, and also those accruing from damage to crops by inundations, will have to be taken into account in reduction of the charge named; and consideration should also be given to the important advantage of the soil becoming suitable for the breeding and rearing of stock, as this will certainly result from the amelioration the proposed works will effect in its condition.

The general welfare, too, ought to be considered, and it should be borne in mind that the interests of the inhabitants, both of the town and country, are to a certain extent identical; for it is beyond question that any addition to the prosperity of the town from improved drainage must, in a degree, be felt throughout the entire parish.

Mr. Wakeham, in his evidence, speaks to the direct losses at present sustained in the town from the inundations. He states:—

“I have been here 12 years, and I consider that in that time the inundations have cost me full 50*l.* in the damage done to furniture, in alterations and repairs of cesspools, gutters, &c.”

Mr. Reed also, upon this subject, states :

“The upper part of this ditch and the open drains leading to it have at times overflowed, and the matter has lain in the road for days together, to the nuisance of all in the neighbourhood. The last time it overflowed it cost me 5*l.* to get rid of it. It has spoilt the well of water in my house, and I have been obliged to sink another to obtain water for the use of my family.”

Nor should the interests and well-being of the lower classes be altogether overlooked. It appears that the losses they sustain from the inundations and excess of damp are, in proportion to their means of livelihood, exceedingly heavy; and although it

involves a repetition, it may be convenient to give here those passages of the evidence bearing upon them.

Charles Butt, an agricultural labourer living in the Flat, states:—

“The cottage I live in is my own property. I used to let one part; my tenant left last August. I cannot find a tenant for the room, which has been flooded, and it will stand empty till it gets dry; if it was dry I could no doubt find a tenant for it. I was asked about a room some time past, and I told the person I could not let the dry room because I was driven out of the other, and wanted it myself. I got from my last tenant 3*l.* a year for one end of the cottage.

“Some people say they are ill owing to the floods. I am a married man, and have three children; my wife is not strong; she has generally got a cold, and says it is the damp of the house that gives it; she grumbles about it and the damp house; one of the children has been laid up during the last year; I don't know what the complaint was. I tried to get the parish doctor, but could not. The child had red spots about him. My wife was laid up 15 weeks last year, and then they would not let me have the parish doctor. I have not had the bill from the doctor yet. The doctor generally costs me 1*l.* every year.

“When I am in work, I earn 1*s.* 4*d.* a-day; in summer I get more, sometimes 2*s.* to 2*s.* 6*d.* a-day.”

Henry Morse states:—

“I live next door to Charles Butt, and have lived in the same cottage eight years. I was laid up with the ague four or five months ago. I had it for six or seven weeks. I had no doctor, but took some stuff for I got of the druggist, and which cost me 3*s.* or 4*s.* altogether. I was not able to work when I was taken with the ague, but my wife at that time had the ague, and could not go out to work. I had no relief from the parish then. I have had some work since I had the ague, but not much. When I had the ague, I was free to do how I could; sometimes I had some work, sometimes none. I pay 4*l.* a-year for my cottage, besides rates and taxes.

“Some of the cottages have gardens, and the things are sometimes spoiled by the floods.

“My next door neighbour has started and left his family to the parish—his wife and two children; the woman is sometimes laid up; she complains of her head and throat. Mary White also, who lives next door but one, had the ague when I had it.

“I don't think I am worse off than the other labourers in the parish; the men's houses are worse than mine, and I don't know of any better than that road.”

RECAPITULATION AND SUMMARY OF CONCLUSIONS.—1. That the district is very unfavourably circumstanced, as regards the nature of the soil for the absorption of the surface water; and as regards the form of the ground and the relative level of the same towards the sea, for its prompt discharge.

2. That the present works of surface-drainage are very inadequate; parts both of the town and country area being subject to floods, which after heavy rains are of long continuance.

3. That the district suffers more or less every year from a deficiency of water during the summer and autumn months, and that it is occasionally subject to long and severe droughts.

4. That thick fogs, denoting an atmosphere highly charged with moisture, frequently and extensively prevail over the district; and that there is much ague and sickness in consequence.

5. That the soil is naturally of an extremely rich quality, but that its condition, from the effects of the floods, and the excess of water with which it is usually loaded, is such as to prevent the full development of its powers of production.

6. That there is much difficulty in breeding and rearing stock upon the level, and that it is very unfit for sheep; and that the farmers are thus under great disadvantages in cultivating this branch of their business.

7. That there is much disease and a high mortality amongst the stock kept; that the crops are at times damaged by the floods; and that heavy direct losses thus accrue to the occupiers of the land.

8. That the ordinary wages of the agricultural labourers are scanty, their diet meagre, and their general state of health low, and that the wretchedness of their condition is materially aggravated by the defective state of the surface drainage.

9. That the numerous ditches on the Flat, while they but imperfectly fulfil the objects for which they were intended, have a sensible effect in the production of disease in the district; that from their offensive state, they are a source of much annoyance, and constitute an obstacle to the prosperity of the town.

10. That there is no public system of sewerage in the town; that cesspools are partially used; but that the most common mode of disposing of the excrementitious refuse and the house-slops is by discharge into stagnant ditches.

11. That even with large means, for want of a proper outfall, individual inhabitants are unable to effect the efficient drainage of their houses.

12. That the inhabitants are supplied with water either from wells or stagnant ditches; that the well-water is of a very hard quality, and in many cases polluted by the percolation of matter from contiguous cesspools. That there are no public pumps, and that the supply of water generally is insufficient.

13. That some of the streets of the town are not even metalled, and many of the footways unpaved; that the remainder are for the most part badly formed, metalled, paved, and repaired; and that the surface, even of the principal streets, is below the level of the floods.

14. That there is no system of public scavenging in use, and that the surface of the streets and open spaces is usually in a filthy condition.

15. That the stagnant ditches, and the accumulations of filth in

and around the town, are highly offensive ; and that they have the effect, by driving away or preventing the influx of visitors, of depreciating the value of the house property.

16. That there is no public lighting or watching in the town.

17. That, with the exception of the Turnpike Trust Act, there is no local Act of Parliament in force within the parish having relation to any of the purposes of the Public Health Act.

18. That the area of burial-ground is adequate to the wants of the parish ; but that its substratum is insufficiently drained.

19. That epidemic, endemic, and contagious diseases prevail extensively in the parish.

20. That, but for the exhalations from stagnant water, and from decaying animal and vegetable matter, which are removable causes, the climate and air of the district would be highly salubrious.

21. That the present governing powers are such only as are commonly in force in the rural districts, and are insufficient.

22. That the comfort and health of the inhabitants could be promoted and their condition improved ;

a. By the more perfect surface drainage of the district, and the abolition of the stagnant ditches.

b. By an efficient system of refuse drainage.

c. By a copious supply of pure water.

d. By a well-organized service of public scavenging.

e. By a system of public lighting and watching.

f. By better paved streets and foot-pavements.

23. That the mortality amongst the stock would be reduced by thorough drainage of the subsoil.

24. That the productive power of the soil would be increased by an efficient system of subsoil drainage, combined with irrigation.

25. That works affording an unlimited supply of pure water may be executed at a cost which would be met by a rate not exceeding 1*s.* 4*d.* in the pound on the house property.

26. That efficient works of refuse drainage may be executed at a cost which would be met by a rate not exceeding 1*s.* in the pound on the house property.

27. That the surface and subsoil drainage and irrigation of the district may be effected at an annual charge of 12*s.* 8*d.* per acre.

28. That there are many existing charges which would be abolished by the works before described ; and that their amount would be more or less in reduction of the above charges.

29. That the above works would, in great part, require for their execution unskilled labour only ; and that, therefore, in carrying them out, much employment might be given to the poor of the district.

